

FILE NUMBERS AND LIST OF FILES TO BE MAINTAINED IN HARD AND SOFT COPY OF EACH FILE BY EACH DEPARTMENT

1. Name of the Department: **School of Biotechnology** Faculty of **Life Science**
2. Year of establishment: **1991**

A.1 Academic programmes offered by the department at present, under the following categories and Sanctions Pertaining to each of the Courses.

Programmes	Number	Course/Subjects
UG		
PG	03	M.Sc. Biotechnology M.Sc. Genetic Engineering M.Sc. Bioinformatics
Integrated Masters		
M.Phil.		
Ph.D.	01	Biotechnology
Integrated Ph.D.		
Certificate		
Diploma		
PG Diploma		
Any other (please specify)		
Total	04	

A.1.1 Details approval/recognition and recommendations issued by the statutory body (for example, (UGC, AICTE, NCTE, PCI, MCI, DCI) governing the programme in case of Professional Programmes letters for the first time and Last Academic Year recognitions: **Documents of DBT enclosed (File No.55).**

If the department offers Distance Education Programmes (DEP) then **NO**
 Number of programmes offered.
 Name of Each Programme
 Letters for approvals by the Distance Education Council.

A.2 Copy of Ordinances related to the courses in the department: **Yes** ✓

Biotechnology-Ordinance No.53

Genetic Engineering-Ordinance No. 195

Bioinformatics-Ordinance No. 144 (All in file No.1)

A.3 Number of working days during the last academic year. **181 Days.**

Number of teaching days during the past four academic years.

182 181 183 180

(‘Teaching days’ means days on which classes were engaged. Examination days are not to be included)

A.4 Number of positions in the Department, their appointment letters, joining reports and sanctions of Each √

Positions	Teaching faculty			Non-teaching staff	Technical staff
	Professor	Associate Professor	Assistant Professor		
Sanctioned by the UGC / University / State Government	01	00	02		
Recruited	01	00	01		
Yet to recruit	00	00	01		
Number of persons working on contract basis			05	07	04

A.4.1 Qualifications of the teaching staff (File No. 7 & 8).

Highest qualification	Professor		Associate Professor		Assistant Professor(Lecturer)		Total
	Male	Female	Male	Female	Male	Female	
Permanent teachers							
D.Sc./D.Litt.							
Ph.D.	01				01		02
M.Phil.							
PG							
Temporary teachers							
Ph.D.							
M.Phil.							
PG					01	04	05
Part-time teachers (Courses Visiting Faculty)							
M.Tech./Ph.D.					03		
M.Phil.							
PG							

Emeritus, Adjunct and Visiting Professors and their sanctions.

	Emeritus	Adjunct	Visiting
Number	Nil	Nil	0

We are taking steps to appoint adjunct professor-Prof. in other University associated in research on 40,000/- per semester.

Semester-wise Record of Courses Visiting Faculty and their Sanctions

S.No.	Academic Session	Semester	Course	Name	Qualification	Teaching/ Research/ Industry Experience	Number of Hours in the Semester
1.		II nd & III rd	M.Sc. Bioinformatics	Ms. Jheeni Jain	MCA		24
2.				Ms. Shivani Bhagwat	M.Sc.	05 Yrs industry + 03 years teaching	Only recruited before few days
3.				Ms. Neha Barve	MS-Pharma	03 years	

A.6 Copies of Latest Biodata of Faculty in positions in the Department: **Yes (File No. 8)**

A.7 1. Copies of Yearly Performa Based Assessment Records of Faculty in positions in the Department: **Yes (File No. 41).**

2. Number of teaching posts sanctioned and filled (Professors/Associate Professors/Asst. Professors)

	Sanctioned	Filled
Professor	01	01
Associate Professors	00	00
Asst. Professors	02(01 Gen+ 01 ST)	01

3. Faculty profile with name, qualification, designation and specialization (D.Sc./D.Litt./ Ph.D./M.Phil., etc.)

Name	Qualification	Designation	Specialization	No. of Years of Experience	No. of Ph.D. students guided for the last 4 years
Dr. Anil Kumar	Ph.D.	Professor	Enzyme technology	33 years	07
Dr. H.S. Parmar					

Name	Qualification	Designation	Specialization	No. of Years of Experience	No. of Ph.D. students guided for the last 4 years
	Ph.D.	Lecturer	Medical and Animal Biotechnology	04 years	43 M. Sc. dissertations

4. List of senior Visiting Fellows, faculty, adjunct faculty, emeritus professors

Dr. Govindjee, Emeritus Professor, Albana University, USA. Delivered a lecture on 19th Oct. 2012.

5. Percentage of classes taken by temporary faculty – programme-wise information each semester wise information:

~68 % in Biotechnology

~ 78 % in Genetic Engineering

~ 80 % in Bioinformatics

Percentage of classes taken by visiting faculty – programme-wise each semester wise information: **18% (individually in I and III semester).**

6. Programme-wise Student Teacher Ratio: **10:1**

Number of academic support staff (technical) and administrative staff: sanctioned and filled: **04 technical staff (Contractual in Bioinformatics sub-centre) and 01 Office Assistant.**

A.8 Students enrolled in the department during the current academic year, with the following details:

Students	U G	PG	Integr ated Maste rs	M.Phil.	Ph.D.	D.Litt./ D.Sc.
	* M * F	*M *F	*M *F	*M *F	*M *F	*M *F
From the state where the university is located		BT: 07 F+04 M GE: 10F+08M BI: 08F+08M			BT:04F+01M	
From other states of India		BT:12 F+03 M GE: 00F+01M BI: 00F+01M			BT:01F+01 M	

Students	U G	PG	Integr ated Maste rs	M.Phil.	Ph.D.	D.Litt./ D.Sc.
	* M * F	*M *F	*M *F	*M *F	*M *F	*M *F
NRI students						
Foreign students						
Total		37 F+25M			5F+2M	

*M-Male=27 *F-Female=42

Externally registered students? **NO**

Yes No

If yes, how many students avail of this provision annually?

A.7 Calculation of 'Unit cost' of education

(Unit cost = total annual recurring expenditure (actual) divided by total number of students enrolled)

(a) including the salary component = **Rs. 10,391/-**

(b) excluding the salary component = **Rs. 4,614/- (File No. 42)**

A.8 A. Faculty recharging strategies: **1. Participation in refresher courses**

2. Participation in workshop

B. Number and list of faculty with course details of faculty development programmes, academic staff college programs or other faculty recharge programs: **Yes**

Dr. H.S. Parmar (lecturer) successfully completed 21 days long Refresher cum Orientation course on Disaster Management (File No. 13)

Dr. H.S. Parmar (lecturer) successfully completed 21 days long Refresher course (File No. 13)

Dr. H.S. Parmar also attended 06 days long UGC Sponsored workshop at Jamia Hamdard University, in 2010 (File no. 43).

A.9 Student projects

- percentage of students who have done in-house projects including inter-departmental projects: **100 % students of Biotechnology**
- 50 % Genetic Engineering**
- 60 % Bioinformatics**

- percentage of students doing projects in collaboration with other universities / industry / institute: **50 % students of Genetic Engineering and 40 % students of Bioinformatics carried out projects outside the institution.**

A.10 Awards / recognitions received at the national and international level by

- Faculty: **Dr. Anil Kumar**
 - Dr. Anil Kumar is founder Professor and Head of School of Biotechnology. His unique work has made School of Biotechnology Nationally as well as internationally recognized institution.
 - He is senior most Professor of Biotechnology in the entire MP.
 - He is Officer Incharge of Bioinformatics Sub Center at the University. The center is sponsored by the Department of Biotechnology, Govt. of India, New Delhi.
 - Dr. Anil Kumar has published number of research papers in various reputed National and international journals. He has also produced 25 Ph.Ds. At present several Ph.D students are working under his supervision.
 - He and his team developed various low cost technologies.
 - Various numbers of times he has been expert member in the Ministry of Human Resource development, Govt. of India, New Delhi for the selection of candidates for Japan, Russia, Australia, Germany and Commonwealth etc.
 - He has been expert (Governor's/Chancellor's nominee) in the selection of teachers (Professors, Readers, Lecturers) in number of universities.
 - Dr. Anil Kumar is member of Advisory board for the book 'Dictionary of Biotechnology' authored by Somani.
 - Dr. Anil Kumar is Chairperson of Board of Studies of Biotechnology, Devi Ahilya University, Indore.
 - Dr. Anil Kumar has been External member on the Board of Studies in Biotechnology at Amravati University, Amravati.
 - Dr. Anil Kumar has been External member on the Faculty board of Life Science, Jiwaji University, Gwalior.
 - Dr. Anil Kumar is Convener Indore Chapter and life member of Society of Biological Chemists, Plant Research, and Indian Science Congress Association, India
 - Dr. Anil Kumar has received Distinguished Leadership award of American Biographical Institute and has been nominated as Deputy Governor in their Board.

- Due to his contributions to Biotechnology, Dr. Anil Kumar's name has been included in the International Directory published by The American Chemical Society, USA.
- Dr. Anil Kumar has been expert member of the Standing Committee of the Madhya Pradesh State Government.
- Dr. Anil Kumar has been elected Senate member for Devi Ahilya University Court.
- Dr. Anil Kumar has been external member on the Post Graduate Board of Studies in Biotechnology at Nagarjuna University, Nagarjuna Nagar, Guntur.
- Dr. Anil Kumar is member of various International Societies like New York Academy of Sciences, USA, Bioencapsulation Research Group, France.
- He has been member of Biotechnology Club, BCIL, New Delhi.
- He is working for popularization of Biotechnology. He has organized various conferences and workshops. He has organized National Science Weeks in 1992, 1993, 1994, 1997, 2000, 2002, 2003, 2004. He has also organized Technician Training Programme of 3 months. He has also organized Popular Lecture Series in 1993 and in Aug. 1998 and Bioinformatics Workshops regularly since 1997.
- CIMAP Lucknow (an organization of CSIR, New Delhi) felicitated Dr. Anil Kumar for his valuable contributions in the field of Biotechnology.
- Dr. Anil Kumar was awarded Fellow of the Year 2000 by the Society of Plant Research.
- Dr. Anil Kumar has collaborations with other National Research Laboratories. He is having collaborations with CIMAP, Lucknow; NCCS, Pune.
- Dr. Anil Kumar's name has been included in the book 'Curriculum Vitae International' of International Biographical Research Foundation.
- Dr. Anil Kumar's name has been included in Marquis Who's Who, Asian/American Who's Who and in many other publications.
- He is also engaged in social and charity services.
- He has been member (2009-2012) of the Executive Council of Devi Ahilya University, Indore
- He is life member of Biotechnology Society of India, member of the Society for Bioscience and Bioengineering, Japan and member of the American Society of

Biochemistry and Molecular Biology and member of the American Chemical Society.

- He has been awarded Biotechnology Overseas Associateship from DBT. He availed the Associateship from Oct., 2003 to January, 2004 (in Jack Preiss Lab, MSU, USA)
- He was nominated member, International Scientific Committee of 4th World Congress of Cellular and Molecular Biology Society held on October 7-12, 2005 at Poitiers, France. He also chaired a Symposium entitled 'Enzymes of carbohydrate metabolism and their exploitation in biotechnology' in the Congress.
- He has been nominated President for the Society for Science & Environment for the year 2007. He was Vice-President of the Society for the year 2006.
- He has organized and hosted National Conference on Biotechnology, Science & Environment on Dec. 28-29, 2006 at the School of Biotechnology of the University.
- He is Associate Editor for the Journal of Cell & Tissue Research. Besides, he is member of the Editorial Board of many journals Viz. Journal of Proteomics & Bioinformatics, Journal of Computer Science & Systems Biology, Current Trends in Biotechnology and Pharmacy, Biotechnology & Molecular Biology Reviews etc.
- He was the Organizer & President of the 5th World Congress of Cellular and Molecular Biology held on Nov. 2-6, 2009 at the Devi Ahilya University, Indore, India (jointly in collaboration of World Society for Cellular & Molecular Biology).
- He has been offered Honorary Fellowship of Association of Biotechnology & Pharmacy, and World Society of Cellular & Molecular Biology, France

Dr. H.S. Parmar:

Best Science Research Award-2009-2010 sponsored from M.P.C.S.T., Bhopal.

- Awarded UGC-Major Research Project-2013
- Awarded a project from Herbakraft, NJ, USA.
- Doctoral / post doctoral fellows: **Nil**
- Recognition of Students: Received 8th rank in **ABLE-BEST-2011**.

A.11 Seminar/ Conference/Workshop organized and the source of funding (national / international) with details of outstanding participants, if any (**File No. 19**).

Year	National	International
2007-08	Workshop on Bioinformatics for genomics and proteomics data analysis (Oct 29-Nov 02, 2007)	
2008-09	Workshop on machine learning techniques for bioinformatics data analysis (04-08, Nov, 2008)	5 th world congress of Cellular and Molecular Biology (02-06, Nov, 2009)
2009-10	Workshop on structural Bioinformatics and system biology (25-27, Nov, 2009)	
2010-11	Workshop on computational Biology and Molecular Dynamics (20-22, Jan, 2011)	
2011-12	National Seminar on Industrial facet of Biotechnology (24-25 Jan, 2012)	
2012-13	World Ocean Day (8 th June 2013)	

2013-14	Bioinformatics workshop on Genomics, Proteomics and Bioinformatics (Aug29 to Aug31, 2013)	
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A.12 Code of ethics for research followed by the departments: Point wise five code of conducts

- (1) Follow guidelines of CPCSEA and institutional ethical committee to perform experimentation on laboratory animals (mice and rats).
- (2) Not using any radioactive and genetic materials that need additional biosafety.
- (3) Extreme care in handling health hazardous chemicals.
- (4) No plagiarism and no copy paste in manuscripts and theses.
- (5) Working on the topics closely associated with the direct benefits to society and end users including enzyme technologies, agricultural aspects, understanding of pathologies and drug discovery & therapeutics.
- (6) All research papers in good journals.

A.12 Student profile course-wise: **This time (2013-14). All India admission test conducted through JNU, New Delhi for M.Sc. Biotechnology course and a list of selected students for our School sent by them to us.**

Name of the Course (refer to question no. 4)	Applications received	Selected		Pass percentage in qualifying UG examinations	
		Male	Female	Male	Female
JET (Joint entrance Test) for M.Sc. Biotech (industry), Genetic Engineering and Bioinformatics and CEEB (conducted through JNU, New Delhi)	On an average 8000-10000 students appear in CEEB and 100-300 for JET	Biotech: 7M G.E. 9M Bioinfo. 9M	19F 10F 8F	55 %	

A.13 Diversity of students

Name of the Course	% of students from the same university	% of students from other universities within the State	% of students from universities outside the State	% of students from other countries
M.Sc. Biotechnology	42.30		57.70	
M.Sc. Genetic Engineering	94.73		5.27	
M.Sc. Bioinformatics	88.23	6.25	5.89	

A.14 How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.

UGC NET / SLET (Since 2011-12)

Name of examination	% of students appeared	% of students qualified
CSIR-UGC-NET	95 (ELIGIBLE STUDENTS)	30
GATE	95 (ELIGIBLE STUDENTS)	70
TIFR/NCBS/IGIB/AIIMS/DBT-JRF/ IISc/ IITs/ IARI/DSR/ICAR/IISER	75(ELIGIBLE STUDENTS)	~57
GRE/TOEFL	10	10

A.15 Student progression

Student progression	Percentage against enrolled
UG to PG	NA
PG to M.Phil.	NIL
PG to Ph.D.	68.8
Ph.D. to Post-Doctoral	20
Employed	
• Campus selection	
• Other than campus recruitment	~30
Entrepreneurs	~1-2

A.16 Diversity of staff

Percentage of faculty who are graduates	
of the same university	77.77

from other universities within the State	
from universities from other States	22.23
from universities outside the country	

A.17 Number of faculty who were awarded Ph.D., D.Sc. and D.Litt. during the last four years:

01 (Dr. H.S. Parmar in Aug 13, 2009)

A.18 Present details of infrastructural facilities in the department with regard to

- a) Library: **SoBT departmental library has more than 3000 books relevant to biotechnology, genetic engineering and bioinformatics. SoBT has access to International journals for example, NATURE, Animal Tissue Culture and Cell Science, and Journal of Bioscience and Bioengineering etc.**
- b) Internet facilities for staff and students: **36 desktop; 05 laptop; 02 notebooks; 01 workstation; 06 printers; 02 scanners and 01 photocopier for students and staff. All the systems having access of Internet facilities.**
- c) Total number of class rooms: **05**
- d) Class rooms with ICT facility: **05**
- e) Students' laboratories: **06**
- f) Research laboratories: **04**

A.19 List of doctoral, post-doctoral students and Research Associates

a) from the host university

- 1. Ms. Shivani Bhagwat**
- 2. Ms. Ritu Jain**
- 3. Mr. Rupesh Chawda**
- 4. Mr. Prashant Chaurasia**
- 5. Mr. Mukesh Patidar**

b) from other universities

- 1. Ms. Neha Barve**
- 2. Ms. Sonia Raghuvanshi**
- 3. Mr. Gaurav Singh**
- 4. Ms. Pratibha Maravi**
- 5. Ms. Ranjeeta Chauhan**

A.19 Records of financial assistance and Number of post graduate students getting financial

assistance from the university, UGC, State, AICTE.

Our M.Sc. program is funded by DBT, New Delhi and the students enrolled through JNU entrance getting fellowship of Rs. 3000/-p.m. The total students getting this fellowship are 19. (File No. 44).

Besides, SC/ST/ OBC students are getting fellowships from State government. The total number of students is 20.

A.20 Methodology of need assessment exercise undertaken before the development of new programme(s)

Need assessment was done on the basis of the suggestions of the experts, students and stakeholders. Various aspects have discussed with experts such as changing need of time, requirement of the corporate sector and National level examination. The issues are then discussed in departmental committee meetings for the need of changing the syllabus or introducing a new programme.

A.21 Feedback from

- a. Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback? **Yes**

The provided feedbacks analyzed by the department and discussed during departmental committee and make changes according to feedback to solve the problems of the students. Teacher student meetings are also conducted to resolve the problems as well as grievances pointed in the feedbacks.

- b. Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?

Department uses the feedback as indicator of the overall quality of the teaching and learning, infrastructure, behavior of the staff and faculties to students and using this indicator the required changes implemented.

- c. Alumni and employers on the programmes offered and how does the department utilize the feedback? **Department improves the program by incorporating the suggestions from feedbacks. (File No. 15, 20, 21).**

A.22 Distinguished alumni of the department (maximum 10)

- 1. Dr. Rajesh K. Saini, Faculty USA (1993).**

2. **Dr. Nevil J Singh, Scientist TIFR, Mumbai (1993).**
3. **Dr. B. Venkaiah, Faculty USA (1995).**
4. **Mr. Somnath Ghosh: Scientist BARC, Mumbai (2003).**
5. **Mr. Arjun Singh Raghuwanshi, Scientist INTAS, Ahemdabad (2003).**
6. **Dr. Sumati Mattoo, USA(2004).**
7. **Dr. Divya Sinha, Iowa State University, USA (2005).**
8. **Dr. Arun Singh, Munich Germany (2006).**
9. **Dr. Sarika Garg, Postdoc, Canada (2007).**
10. **Dr. Himanshu Arora, Korea (2007).**
11. **Mr. Rustam Ali, IISc. Bangalore (2008).**
12. **Mr. Amit Tripathi, ICGEB, New Delhi (2010).**
13. **Ms. Vinita Tiwari, IISc. Bangalore (2011).**

A.23 Student enrichment programmes (special lectures / workshops / seminar) involving external experts:

1. **Workshop on Bioinformatics: Computational Biology and Molecular Dynamics (2011).**
2. **National Seminar on Industrial Facet of Biotechnology (2012): the experts from corporate sector delivered the lectures on Drug Discoveries**
3. **Lecture on how to grab opportunities for PhD. in USA from Senior Advisor Higher Education, India domain, Govt. of USA (2012).**
4. **Lecture on Photosynthesis delivered by Prof. Govindjee, Emeritus, Albana University, USA (2012) on 19th Oct. 2012.**
5. **Lectures from Gynecologists and Obstetrics for Girl students (17.01.2013).**
6. **National workshop on Bioinformatics to be held on 29-31 Aug, 2013.**

A.24 Teaching methods adopted by the faculty for different programmes.

1. Teaching of advanced topics in details by using International research articles and online books including but not limited to:
 - a. **The role of miRNA maintaining pluripotency of stem cells.**
 - b. **Tissue engineering technologies with reference to bioprinting.**
 - c. **Gene silencing**
 - d. **Cellular reprogramming**
 - e. **Presentation literature to students on nuclear translation, prodrug therapy and riboswitches.**

f. Mechanism of DNA histone binding: epigenetic regulation.

g. To improve communication and research skills, presentations delivered by students on research topics.

Web references:

<http://www.ncbi.nlm.nih.gov/books/NBK27044/>

www.pubmed.com

<http://scholar.google.co.in/>

http://highered.mcgraw-hill.com/sites/0072495855/student_view0/chapter2/animation_mitosis_and_cytokinesis.html

http://www.phschool.com/science/biology_place/biocoach/cellresp/review5a.html

A.25 Monitoring by the department to ensure that programme objectives are constantly met and learning outcomes are monitored:

The basic objectives of SBT syllabi are to enhance the theoretical and practical understanding as well as skills of students in the area of advance biological sciences. We are shaping the career of students by which after the completion of their course they absorb in higher education, government and corporate sectors. It is also noteworthy that we are not only developing professional competencies, but also shape overall personality of students to become a responsible citizen of country. The outcomes monitored in the form student placement profile (copy enclosed).

A.26 Highlight of the participation of students and faculty in extension activities in the department:

Department students participate in every work of the department through various departmental committees. In fact, we take their advice and suggestions to design syllabus, time table and examinations schedule. We also implicated green policy out of which Environment, cleanliness and oceans day were celebrated to spread awareness. We also organized AIDS awareness day (File No. 23).

A.27 Details of “beyond syllabus scholarly activities” of the department:

a. Participation in various conferences, seminars and lectures.

b. Hands on training of *in silico* biology.

c. 15 days long hands on training on enzyme technology being conducted for M.Sc. Students selected from M.P. Biotechnology Council, Bhopal (June 13 to June 28, 2012).

15 days long hands on training on enzyme technology being conducted for M.Sc. Students selected from M.P. Biotechnology Council, Bhopal (July 15 to July 29, 2013).

d. Students counseling on the personal problems, life style, career and to teach them to

become good human being is done by mentor faculty and HOD.

e. International research publications of P.G. students in good impact journals.

A.28 Information about programme/ department accreditation/grading by other agencies? If yes, give details.

No.

A.29 Write up of highlight the contributions of the department in generating new knowledge, basic or applied.

Our department produced 25 Ph.D. and 370 M.Sc. students.

Research projects undertaken:

- 1. Lab scale technology for glucose-1-phosphate production.**
- 2. Low methoxyl pectin production.**
- 3. Low molecular weight polygalacturonic acid production.**
- 4. Immobilization technologies.**
- 5. Plant tissue culture technologies.**
- 6. Basic understanding of metabolic disorders.**
- 7. Drug discoveries & therapeutics development.**
- 8. Development of tools and information using bioinformatics research such as DEMP (database of epitopes and MHC binding peptides); SSPred; Predict Bias; GGRP; MT Genome DB; Orchid DB; PCR RECEIPE; OLERA and TAXON etc.**

A.30 Write up of Future plans of the department:

- a. Develop some new collaboration and exchange program for students and faculties.**
- b. Plan to start consultancies for pharma and biotech industries.**
- c. Filling of one empty position of permanent faculty in ST category.**
- d. Submit research proposals for International collaboration under various schemes of DBT, New Delhi.**
- f. Emphasis will be made to further strengthen the student centric learning and enhancing the use of ICT resources.**

A.31 Five Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.

Strengths:

- International and National collaborations**
- Students placement in National and International Institutions, companies**
- Renowned Professor heading the School research laboratories**
- Access of each laboratory for everyone.**
- Student participation in policy decisions.**

Weaknesses

- Requirement of additional permanent teaching faculties.
- Supporting and administrative staff needs to be appointed.
- Present University and State Govt. rules are out of context and needs to be in line with International practices.
- Decreasing number of students pursuing Science.
- Shrinking of opportunities in the area of Biological sciences.

Opportunities

- International and National collaborations will improve research standards and opportunities to students.
- Research skills and aptitude of faculty and students will further improve the quality of teaching and research.
- Sandwich Ph.D. programme of various funding agencies will be beneficial to start the consultancy services from Corporate.
- Adjunct Faculty positions of funding agencies like DST can improve teaching standards.
- International fellowships for the Faculty will enhance the communication and research skills further.

Challenges:

- Recruitment of permanent faculty members is an urgent need of the department.
- Procedural delay should be greatly improved.
- Proper implementation of leave rules required to avail research fellowships.
- Institutional subscription required to access National and International research journals.
- Lack of motivation for science among students.

A.32 Write up of efforts for Quality Sustenance and Assurance in the department:

SoBT continuously makes efforts towards maintaining the quality by promoting research and quality of teaching. This is further substantiated by the research publications of students during M.Sc. It is very significant achievement for department and University.

Besides, during student and teacher meetings SBT makes the students aware to study, plan the strategies to crack competitive examinations including NET, GATE, ICMR and specific exams for premier research institutes. Department hosted workshop and conference on Fostering research excellence at University level.

SBT has also recruited number of temporary faculty members (contract). Bioinformatics

sub-centre staff also contributes to support teaching and research to students.
Recruitment is as per qualifications and UGC regulations.

CRITERION I: Curriculum Design and Development

1.1.1 Academic Year of Revision, Curriculum of Each Course, Objective and Course plans of each paper taught in the course: **2012 (File No. 3,4, and 5).**

Whether uploaded on website

Yes No

1.1.1.A Eligibility for admission to each course: **Pass in the Entrance examination and minimum 55 % in Graduation.**

1.1.1.B Whether reflects Vision and mission reflection

Yes No

1.1.1C Write on reflection of vision and mission

Vision:

To generate intellectual and socially responsible manpower.

To develop curiosity and thirst of knowledge among students.

To develop not only good scientists but also good human being.

Constant academic excellence.

Mission

To develop globally competent professionals.

To shape the crude ideas into refined scientific approach.

To fulfill the scientific and social needs of the nation.

Syllabi of our courses have sufficient balance of basics with advanced applications. It also develops conceptual development and innovative thinking.

1.1.2 Process followed in last revision of Curriculum

A. Need Assessment: **Need assessment was based on the student feedback, advice of external experts and Faculty members of the department.**

B. Faculty involved in curriculum design (List of members)

Dr. Anil Kumar

Dr. Anand Nighojkar

Dr. Tripti Sharma

Dr. H.S. Parmar

- C. Departmental Committees/Board approvals of the designed curriculum: **Yes**
- D. Records of External Experts Opinion of the designed curriculum: **Yes**
- E. Records of External Experts Feedback of the designed curriculum: **Yes**
- F. Records of Student Feedback opinion on the existing curriculum: **Yes**
- G. Syllabi of National tests, Eligibility Tests and Examinations for example, GATE, NET, Service Commissions, National Councils, for the each curriculum, if any,: **Yes (File No. 16)**

1.1.3 Write up out each course in reference to

- * Employability
- * Innovation
- * Research

M.Sc. Biotechnology course

- * **Employability**

Each Curriculum of courses has number of components in the syllabus encompassing the syllabi of national level examinations and NET, GATE, ICMR, DBT-JRF, BINC. It provides opportunities in higher education sector. Also the teaching of advance subjects including genomics and proteomics, protein engineering and stem cell biology provide fair chances to get opportunities in corporate sector.

***Innovation**

PG IV semester completely dedicate themselves for research / dissertation work. The emphasis on that work should be novel, therefore, it provides an opportunity to enhance the practical and experimental skills among the students to make them able to innovate.

*** Research**

M. Sc. Biotechnology student work very hard under the supervision of faculty. The research is substantiated by the number of publications during M.Sc. tenure of students.

M.Sc. Genetic Engineering course

- * **Employability**

The curriculum has number of components in the syllabus encompassing the syllabi of national level examinations for eg. NET, GATE, ICMR, DBT-JRF, BINC etc. Thus providing opportunities in higher education sector. Also advance subjects including metabolic Engineering and Bioinformatics that provide fair chances to get opportunities corporate sector.

***Innovation**

We have IV semester completely dedicated for research / dissertation work. The

work should be novel, therefore, it provide opportunity to enhance practical and experimental skills among students to make them able for innovation.

*** Research**

M.Sc. (GE) students work very hard under the supervision of Faculty of department as well as outside. The research is substantiated by number of publications during M.Sc. tenure of students.

M.Sc. Bioinformatics course

*** Employability**

We have number of components in the syllabus encompassing the syllabi of national level examinations such as NET, GATE, ICMR, DBT-JRF, BINC etc. Thus providing opportunities in higher education sector. Also advance subjects including basic science and core computational biology that provide fair chances to get opportunities corporate sector.

***Innovation**

We have IV semester completely dedicated for research / dissertation work. The work should be novel, therefore, it provide opportunity to enhance practical and experimental skills among students to make them able for innovation.

*** Research**

Our M.S.c. Bioinformatics student worked very hard under the supervision of faculties from our department as well as outside the institution. The research is supported by number of publications during M.Sc. tenure of students (document enclosed).

(File No.12 for placement profile)

M.Sc. Biotechnology

1.1.4 UGC/AICTE/National Council, Regulating bodies Guidelines for the development and restructuring the curriculum, if any,

DBT advisors regularly visit the department and suggestions and guidance are also taken from them for changes required in curriculum.

Department Faculty members, if any, involved in leading any curricular reform which has created a national impact? **N.A.**

1.1.5 A. Interactions, Opinions and Feedbacks for the designed curriculum with External Research Bodies. **File no. 15 , 16 and 20**

1.1.6 B. Interactions, Opinions and Feedbacks for the designed curriculum with Industrial Experts, particularly in case of Professional Courses.

1.1.7 C. Interactions, Opinions and Feedbacks for the designed curriculum with Stake Holders, such as eminent personalities, Visitors to the departments, parents. **File no. 15 , 16 and 20**

1.1.8 D. Alumni opinion on the existing curriculum (may be taken in an Alumni Register). **File No. 15**

1.1.6 List of Department Courses which are also introduced in University affiliated colleges also. **Almost all the colleges running M.Sc. Biotechnology and Bioinformatics, while only Soft Vision College Indore is running M.Sc. Genetic Engineering.**

1.1.7 Additional skill-oriented programmes designed for the colleges, Employees, Faculty relevant to regional needs: **We have conducted 15 days long training programme for M.Sc. Biotechnology students selected by M.P. Biotechnology Council, Bhopal (June 3 to June 28, 2012).**

We have conducted 15 days long training programme for M.Sc. Biotechnology students selected by M.P. Biotechnology Council, Bhopal (July 15 to July 29, 2013).

1.2 Academic Flexibility

1.2.1 List of Courses taught in Department on campus: **M.Sc. Biotechnology, Genetic Engineering and Bioinformatics and Ph.D. in Biotechnology.**

* Overseas programmes offered on campus: **TWAS Ph.D. programme of DBT, New Delhi.**

* Programmes available for colleges to choose from: **M.Sc. courses are also running in colleges.**

1.2.2 Provisions with reference to academic flexibility

a. List of Core/ Elective options: **Yes we have both the options (Syllabus enclosed).**

b. List of Enrichment courses: **PG student who excel are offered enrichment program .**

c. List of Courses offered in modular form: **Plan for implementation in academic in Session 2013-14.**

d. List of courses/papers with Credit accumulation and transfer facility. **Plan for implementation in academic year 2013-14.**

e. Details of Lateral and vertical mobility within and across programmes, courses and disciplines. **Interdisciplinary subject in PG course of other department planned from 2013-14.**

1.2.3 International students: **Summer trainees from France during 2010-11 (File no. 37).**

- 1.2.4 Courses developed targeting international students, if any. **NO**
- 1.2.5 Dual degree and twinning programmes. **NA.**
- 1.2.6 A. List of students, Admission Process, Fee structure of each programme **(List enclosed).**
B. Teacher qualification and salary parity and differences (if any) at par with the aided programmes:
1. Regular Permanent Teachers (Dr. Anil Kumar and Dr. H.S. Parmar) getting salaries as per University rules i.e. nearly 90,000/- and 45,000/- p.m. respectively. Both are Doctorate.
2. Temporary faculties are getting UGC scale basic pay plus grade pay (21,600/-).
- 1.2.7 Operational details of distance Education Course in the department (if applicable). **N.A.**
- 1.2.8 Choice Based Credit System (CBCS): **Yes, but only provided with few options due to shortage of faculties. (Protein Engineering and Proteomics and Genomics, Stem cell biology) (File no. 45).**
- 1.2.9 Departmental Academic Calendars of each semester: **Calendar include induction, remedial, orientation and beyond the syllabus for advanced learners, counselling and psychometric test and allocation of the mentors.**
- 1.2.10 Inter-disciplinary programmes, Name of interdisciplinary program and details of students undertaken those programmes. **Planned from 2013-14**
- 1.3 Curriculum Enrichment**
- 1.3.1 A. Academic years in which each of the courses was revised **2012-13.**
B. Review, up-gradation, **Yes**
C. Social relevancy: **Yes, because our theoretical and research aspects covering enzymes, drugs and diseases that can meet the emerging needs of society.**
D. Job orientation **(Placement profile of students enclosed).**
E. Knowledge intensive nature of each course: **Syllabus has vast coverage major areas on the other hand also provide deep insights of topics covered.**
F. Meeting the emerging need of students: **Career counseling and research aptitude**

development classes being undertaken for advanced learners, while extra classes for slow learners classes.

G. Meeting the emerging need of stakeholders: **Various development programmes being designed for non teaching staff and students like computer training, communications skills and personality development etc. For faculty development programmes University Academic Staff College conducts number of programmes every year. (File no. 3, 4, 5)**

1.3.2 Last four years during which how many new programmes at UG and PG levels were introduced

* Inter-disciplinary: **M.Sc. Biotechnology is itself an interdisciplinary program.**

* programmes in emerging areas: **M.Sc. Bioinformatics (started in 2009).**

1.3.3 A. Strategies adopted for the revision of the existing programmes: **Placement profile, assessment of emerging trends and DBT guidelines.**

B. Percentage of courses underwent a syllabus revision in last four years: **100%**

1.3.4 A. Value-added courses offered: M.Sc. Genetic Engineering and Bioinformatics being started in 2007 and 2009 respectively.

B. Details of these courses access to students: **More than 90 % seats were filled every year except 2012 due to change in the procedure of entrance examination through Common Entrance Test. SBT is reverting to earlier approach from 2013-14**

1.3.5 Higher order skill development programmes in consonance with the national requirements (for example, innovative M. Tech. /M.E. Courses, CCNA, CCSP): **PG courses have seminars and presentations as a part of their curriculum for the improvement of their communication skills.**

1.4 Feedback System

1.4.1 A. Copy of Feedback form to obtain feedback from students/student class representatives regarding the curriculum: **(file no. 20)**

B. Details of action and use of on feedback from students: **Feedback was on an average Good. However, strategies to further improving PG programmes made through departmental committee**

After discussion on the feedback on curriculum (File No. 23)

- 1.4.2 A. Method used for eliciting feedback on the curriculum from national and international faculty- **Feedback elicited from national experts at Academic and corporate**
- B. Conducting webinar- **Planned from 2013-14**
- C. Curriculum development Workshops - **Planned from 2013-14**
- D. Curriculum development online discussions- **Planned from 2013-14**
- E. Impact of Workshop and discussions- **Discussion with national experts from academic and corporate lead to improvement in curriculum regularly.**

(File no. 40)

- 1.4.3 Specify the mechanism through which affiliated institutions give feedback on curriculum enrichment and the extent to which it is made use of. : **We take feedback by mails/letters from affiliated institutions in June 2013.It helps in improvement of syllabi taught in affiliated colleges.**
- 1.4.4 What are the quality sustenance and quality enhancement measures undertaken by the Department in ensuring the effective development of the curricula?
At least one departmental committee meeting monthly conducted at the School. Syllabi revised on an average annually through Board of studies. We focus the percent students absorbed for higher education after M.Sc. and placement profile as an indicator of good curricula (copy of placement profile enclosed). Students are at both the levels of committees in departmental and in Board of Studies. Involvement of students at IVth semester in research enhances the quality and is a significant quality enhancement measure.

1.4.5 Any other information regarding Curricular Aspects which the UTD would like to include. Feedback also taken as Per Ordinance 31 and from Experts who visit the department for comprehensive evaluation in Viva at the end of each semester.

CRITERION II: TEACHING-LEARNING AND EVALUATION

2.1 Student Enrolment and Profile

- 2.1.1 Copy of Advertisements and website info for ensuring publicity and transparency in the admission process: **Copy of JNU and CET examinations advertisement copy enclosed. (File No. 2)**
- 2.1.2 **A. Write up** details of the process of admission put in place by the department

. B. List of the criteria for admission: (e.g.: (i) merit, (ii) merit with entrance test, (iii) merit, entrance test and interview, (iv) common entrance test conducted by state agencies and national agencies (v) other criteria followed.

Minimum 55 % in graduation will be eligible to appear in entrance examinations (University Common Entrance Test (CET) and National Central Entrance Examination for Biotechnology (CEEb)). Merit in the entrance test is the criterion.

2.1.3 Admission process in the affiliated colleges if department is monitoring the same. **It is monitored by University Academic Section and State Higher education department and by online registration and counseling. Admission is as per merit keeping State Education Department Guidelines.**

2.1.4 Student profile analysis: **Not required, as our admission procedure is based on the merit in entrance examination, only verification of documents done in order to admit students. However, a copy of placement profile enclosed.**

2.1.5 Strategies adopted to increase/improve access for students belonging to the following categories:

SC/ST

* OBC

* Women

* Persons with varied disabilities

* Economically weaker sections

* Outstanding achievers in sports and other extracurricular activities

We are following the rules of Central / State Government to facilitate the access of the following sections (Copies enclosed). State Govt. grants Scholarships/Fees to SC/ST/OBC Non-Creamy layers; Sports students and Disabled students granted concessions as per State Policy.

2.1.6 Number of students admitted in department in the last four academic years: **(List enclosed): M.Sc. Biotechnology**

Categories	Year 1 (2009-2011)		Year 2 (2010-2012)		Year 3 (2011-2013)		Year 4 (2012-2014)	
	Male	Femal	Mal	Femal	Mal	Femal	Mal	Femal

		e	e	e	e	e	e	e
SC	00	00	00	02	01	00	00	03
ST	00	00	00	00	01	00	00	00
OBC	01	00	00	03	01	01	01	03
General	02	06	02	05	04	06	02	06
Others like J& K	-----	-----	-----	-----	-----	-----	-----	-----
Total	03	06	02	10	07	07	03	12

M.Sc. Genetic Engineering

Categories	Year 1 (2009-2011)		Year 2 (2010-2012)		Year 3 (2011-2013)		Year 4 (2012-2014)	
	Male	Female	Male	Female	Male	Female	Male	Female
SC	02	0	02	01	03	02	01	00
ST	02	0	0	03	02	00	01	01
OBC	02	01	02	03	01	06	03	01
General	02	07	05	06	02	05	01	04
Others like J& K	----	----	-----	-----	-----	----	----	----
Total	08	08	09	13	08	13	06	06

M.Sc. Bioinformatics

Categories	Year 1 (2009-2011)		Year 2 (2010-2012)		Year 3 (2011-2013)		Year 4 (2012-2014)	
	Male	Female	Male	Female	Male	Female	Male	Female
SC	02	02	02	02	02	0	02	0
ST	0	0	01	01	02	0	0	0
OBC	02	01	04	01	03	05	03	0
General	04	08	06	04	01	06	01	03
Others like J& K	----	-----	-----	-----			----	----
Total	08	11	13	08	08	11	06	03

2.1.7 A. Demand ratio for the various programmes of the university departments: **Usually**

out of 10 students 01 student get selected in the entrance examination of our M.Sc. course.

B. If yes then highlight the significant trends explaining the reasons for increase/decrease.

Programmes	Number of applications	Number of students admitted	Demand Ratio
UG			
PG	Not known because it was through common test for all courses of PG in Life science group	2011-58 2012-36	Through CEEB: 1:10 Through JET: 1:5
Integrated Masters			
M.Phil.			
Ph.D.	Department level entrance test(DET)- November 2012 (87)	07	1: 12.42
Integrated Ph.D.			
Certificate			
Diploma			
PG Diploma			
Any other (please specify)			

2.1.8 A. Any programme discontinued/staggered in the last four years? **NA**

B. If yes, write-up of the reasons. **NA**

2.1.9 Record of Admissions(2013-14)

Programmes	Total Number of admissions	Number of 1st division pass	Number of 2 nd division pass	Entrance test Marks%

		students in qualifying	students in qualifying	(Min)
UG				
PG	36	26	10	55%
Integrated Masters				
M.Phil.				
Ph.D.	07	05	02	40
Integrated Ph.D.				
Certificate				
Diploma				
PG Diploma				
Any other (please specify)				

2.2 Catering to Diverse Needs of Students

2.2.1 A. Organization of orientation/ induction programme for fresher: **Orientation cum counseling program was conducted for fresher's dated on 25.08.2012 and on Aug 02, 2013.**

B. Details such as the duration, issues covered, experts involved and mechanism for using the feedback in subsequent years: **04 hrs long programme was held where the issues of ragging, study, career prospects, information about the department and psycho-social aspects being covered.**

2.2.2 A. Analysis of the "differential requirements of the student population" after admission and before the commencement of classes: **Discussed.**

B. Key issues identified and addressed: **Communication skills, scientific interests and inclination towards diversified areas of science, career prospects and financial problems.**

2.2.3 A. Bridge/remedial/ add-on courses: **We take extra classes for weak students and planning for add-on courses for advanced learners from 2013-14.**

B. Time table and details of the courses offered in the department-wise for all courses: **Copies of time tables along with academic calendar enclosed. File no. 10**

2.2.4 A. Academic growth of students from disadvantaged sections of society, economically disadvantaged, physically handicapped, slow learners, etc

Most of these students were enabled by department and are presently pursuing higher education (find pasted below the list);

1. Ms. Surbhi Chouhan
2. Mr. Rupesh Chawda
3. Lokesh Baghel
4. Afaque Khan

5. Sumit Kumar Dongre

Above are only few examples

B. Main findings

It is to emphasize that almost all of the pass out students from disadvantaged sections are either serving corporate sector or pursuing higher education.

- 2.2.5 Identification and responses to the learning needs of advanced learners
‘A’ grade was the major criterion. We have provided additional emphasis on the following to crack competitive examinations. How to write SOP? What are the features required to enter in corporate sector? How to think, write and communicate research proposals and papers.
- 2.3 Teaching-Learning Process**
- 2.3.1 Plan and organisation of the teaching, learning and evaluation schedules (teaching plan, evaluation schedules and methods, etc.)
*** Teaching plan and schedule of examinations being provided in the time table and departmental academic calendar.**
***The copies are evaluated within the 07 days of the commencement of the examination.**
*** The students are shown their evaluation and can discuss as well as they can also see copies of the other students. Students in 100% cases got satisfied by evaluation. Ordinance provide representation & revaluation by experts at the end of the semester for comprehensive evaluation in viva.**
- 2.3.2 A. Website info of providing course outlines and course schedules prior to the commencement of the academic session
*** Course plan is provided and also placed at the website and schedule of teaching is mainly in the same order as mentioned in syllabus.**
B. Methods used for effective implementation
*** Regular classes and if required extra classes being conducted.**
- 2.3.3 A. Difficulties in completing the curriculum within the stipulated time frame and calendar
*** Most of the time syllabus covered completely except once in 2011 where admissions were delayed. The course was completed taking extra classes.**
B. Write up of the challenges encountered and the departmental measures to

overcome these.

*** Extra classes and to provide freedom to ask any query after class to any teacher during working hours.**

2.3.4 A. Student-centric learning activities: **School has conducted induction program, Fresher's party, Farewell, seminar, conferences, hands on training, lectures from Gynecologists and Obstetrics. List of events conducted in department enclosed.**

B. List of participatory learning activities which are adopted by the faculty that contributes to holistic development and improved student learning, besides facilitating life-long learning and knowledge management.

School has constituted number of committees, in which students participate actively. Besides, our students participated in student seminars (part of our curricula), Quiz competition held at School of Biochemistry and sponsored from MPCST, Bhopal. Following are the event where these committees were also involved.

1. Induction programme of fresher students (25. 08.2012).
2. Fresher's party (07.10.2012).
3. Seminar on "Fostering excellence in research (15.01.2013). It was a University level event, where department actively participated to conduct successfully.
4. Lectures from Gynecologists and Obstetrics for Girl students (17.01.2013).
5. Shramdan in Garden dated 14.02.2013.
6. Celebrated "Basant Utsav" (15.02.2013).
7. Interdepartmental games (from February 28 to March 02, 2013).
8. Convocation ceremony of University in which School provided Gold medal to the topper students (19.02.2013).
9. Maintenance and repair related problems being addressed by laboratory committees on dates March 20-23, 2013.

2.3.5 Photographs of activities such as invited experts/people of eminence to deliver lectures and/or organize seminars for students (**Documents enclosed**).

Year	National	International
2007-08	Workshop on Bioinformatics for genomics and proteomics data analysis	
2008-09	Workshop on machine learning techniques for bioinformatics data analysis	5 th world congress of Cellular and Molecular Biology
2009-10	Workshop on structural Bioinformatics and system biology	
2010-11	Workshop on computational Biology and Molecular Dynamics	
2011-12	National Seminar on Industrial facet of Biotechnology	

* 15 days long hands on training on M.Sc. Biotechnology students selected through and sponsored through M.P. Biotechnology Council, Bhopal during 13th June -28th June 2012.

* 15 days long hands on training on M.Sc. Biotechnology students selected through and sponsored through M.P. Biotechnology Council, Bhopal during 15th July -29th July 2013.

2.3.6 Encouragement to blended learning by using e-learning resources

Teachings using online literature and power point presentations are used in the department.

2.3.7 Facilities such as virtual laboratories, e-learning, open educational resources and mobile education used by the faculty for effective teaching

These practices are also common, as our department is running M.Sc.

Bioinformatics and in fact our P.G. students publish their work in International research journals.

We have well equipped computer labs.

Students use Pubmed, Scirus, Google scholar, BLAST, FASTA, MOLEGRO, AUTODOC, VisANT, Osprey, Cytoscape, Mega, Phylip, Chem spider, Chems sketch etc.

- 2.3.8 Activities of designated group among the faculty to monitor the trends and issues regarding developments in Open Source Community and integrate its benefits in the university's educational processes:

Dr. Anil Kumar and Dr. Hamendra Singh Parmar are continuously making efforts to train faculties for the recent developments in research areas and Dr. Anil Kumar take informal sessions on publication writing in various journals.

- 2.3.9 Steps taken to convert traditional classrooms into 24x7 learning places

Class room and Laboratory with Wi-Fi or Internet provides 24x7 learning places. For online study issues, department is taking steps after looking towards pros and cons of technology like it has been observed that due to Internet the practice to read books among students is adversely affected. Therefore, it is need of time that before adopting any steps we have to standardize the strategies first.

- 2.3.10 A. Actions taken to avail the services of counsellors/mentors/advisors for each class or group of students for academic, personal and psycho-social guidance (please refer conference/ seminar **file-enclosed**).

- 1. National seminar on 'Industrial Facet of Biotechnology' (24-25 Jan, 2012). Around 120 students from various departments and other institutions were benefitted.**
- 2. Seminar on "Fostering excellence in research (15.01.2013). It was a University level event, where department actively participated to conduct successfully. More than 1400 students benefitted.**
- 3. Lectures from Gynecologists and Obstetrics for Girl students (17.01.2013). More than 30 girls from School of Biotechnology and Future studies students benefitted.**

B. Details of the process and the number of students who have benefitted.

Students benefitted by learning research strategies used in corporate sector, higher education opportunities in USA, how to enter in corporate sector and their working style. Valuable information on psycho-emotional and sexual health

of girls being provided. Mentioned above. To understand how to research and research methodologies. More than 1600 students benefitted by above mentioned events.

2.3.11 A. Innovative teaching approaches/methods/practices adopted/put to use by the faculty during the last four years?

*** Faculty teaches the advanced topics in more details using research articles.**

***Used e-books and animations to teach various molecular signaling pathways.**

B. Improvement in learning by innovative methods

It is an urgent need of time to equipped students with advanced methods to learn and explore. In fact, number of advance topics being added in our course curricula in recent past and the major concern was the unavailability of these topics in the text books which certainly enhanced their innovative skills such as searching and referring the research articles and also the use of animation to understand molecular signaling pathways. Besides, number of aspects including but not limited to writing SOP, concept notes, research proposals being explained using advanced innovative methods.

C. Recognition to the faculty due recognition for innovation in teaching

Yes, Dr. Anil Kumar is member of several committees meant to design syllabus for DBT, New Delhi and many other Universities. Examination observer and decision on the paper pattern. Dr. H.S. Parmar is also key expert and moderator of VYAPAM, Bhopal.

2.3.12 Actions for creating a culture of instilling and nurturing creativity and scientific temper among the learners

- How to design an experiment?-- **Lectures are delivered to students**
- How to decide research problem? -- **Lectures are delivered to students**
- What are the steps involved in drug designing and development? **Lectures are delivered to students**
- How to write Scientific papers, technical notes, research proposals and SOPs. **Lectures are delivered to students**

2.3.13 A. Student projects (if mandatory in each of the learning programme) : **Yes, copy enclosed.**

B. Number of projects executed within the university (department): **200**

C. Names of external institutions associated with the University for Student Project Work: **Number of institutes including NCBS, Bangalore, IISc, Bangalore, CCMB, Hyderabad, Delhi University, JNU, New Delhi, IIT, Delhi, NII, Delhi, CDFD, Hyderabad, IGIB, Delhi, NCCS, Pune, NCL, Pune etc. Besides many Universities and institutes across the country.**

D. Role of faculty in facilitating such projects

100 % faculties are actively engaged in guiding M.Sc. projects. File No. 54

2.3.14 A. Record of shortfall in qualified faculty to meet the requirements of the curriculum:

File No. 40

B. Record of actions for shortfall supplementation : **N.A.**

2.3.15 Number of percentage of faculty enabled to prepare computer-aided teaching/ learning materials: **100 % (09).**

2.3.16 A. Record of Student feedback for evaluation of teachers by the students: **Enclosed**

B. Record of Alumni feedback for evaluation of teachers by the students: **Enclosed.**

C. Methods used and Impact of the evaluation feedback used to improve the quality of the teaching-learning process (TLP): **We discuss these issues in departmental committees and solve (Minutes of committee enclosed). This improves the quality of TLP.**

(File No. 20, 15 and 23)

2.4 Teacher Quality

2.4.1 How the plan and management of human resources was done to meet the changing requirements of the curriculum: **We have increased the number of faculty. As most of the faculty work hard therefore, they are equipped to deal with the increased amount of work assignments and thus meet the changing need of requirement.**

2.4.3 Diversity in its faculty recruitment

Department / School	% of faculty from the same university	% of faculty from other universities within the State	% of faculty from universities outside the State	% of faculty from other countries
	77.77	Nil	22.22	Nil

2.4.4 A. List of qualified faculty appointed for new programmes/emerging areas of study (Bio-technology, Bio-informatics, Material Science, Nanotechnology, Comparative Media Studies, Information Technology, Diaspora Studies, Forensic Computing, Educational Leadership, etc.)? **List enclosed**

B. Number of faculty members appointed to teach new programmes during the last four years: **08 (07 contractual+01 Regular). (File No. 7)**

2.4.5 List of academic recharge and rejuvenation of teachers: **Dr. H.S. Parmar done refresher course in Life Science.**

A. List of faculty availed and provided research grants by the University: **Faculty has project grants from National Agencies.**

B. List of faculty availed and on study leave: **Nil.**

C. List of faculty nominated to national/international conferences/seminars, in-service training, organizing national/international conferences etc.: **Invited /nominated by several agencies, but could not attend due to time constraints.**

Dr. Anil Kumar participated in 24th annual bioinformatics coordinators meeting & National symposium held at CSIR-CIMAP, Lucknow (Feb 2-4, 2013).(File No. 46)

2.4.7 List of faculty received awards / recognitions for excellence in teaching at the state, national and international level during the last four years **Nil.**

2.4.8 List of faculty underwent staff development programmes during the last four years (add any other programme if necessary)?

Academic Staff Development Programmes	Number of faculty
Refresher courses	01 (Dr. H.S. Parmar)
HRD programmes	
Orientation programmes	
Staff training conducted by the university	
Staff training conducted by other institutions	
Summer / Winter schools, workshops, etc.	

2.4.9 Percentage of the faculty have

* been invited as resource persons in Workshops / Seminars / Conferences organized by external professional agencies = **100%**

* participated in external Workshops / Seminars / Conferences recognized by national/ international professional bodies = **15%**

* presented papers in Workshops / Seminars / Conferences conducted or recognized by professional agencies = **Nil %**

* teaching experience in other universities / national institutions and other institutions = **15%**

* industrial engagement = **Nil%**

* international experience in teaching = **Nil %**

2.4.10 List and details of organization of academic development programmes (e.g.: curriculum development, teaching-learning methods, examination reforms, content /

knowledge management, etc.) for its faculty aimed at enriching the teaching-learning process:

Dr. Anil Kumar is chairman of Board of Studies (Biotechnology).

Dr. H.S. Parmar is expert at VYAPAM, Bhopal for various confidential issues deal with the above mentioned points.

2.4.11 A. List of faculty encouraged: **Yes, we are developing some International collaborations to enhance faculty exchange programs. Dr. H.S. Parmar also applied for post doctoral fellowship DBT-CREST-2013-14.**

* Mobility of faculty between universities for teaching

* Faculty exchange programmes with national and international bodies : **N.A.**

B. Schemes helping in enriching the quality of the faculty by such mobility and faculty exchanges: **The number of schemes available in National agencies such as DBT-CREST (DBT, New Delhi) enhance the skills of the faculty.**

2.5 Evaluation Process and Reforms

2.5.3 A. Time taken by the department for declaration of examination results each semester: We declare results usually within 07-08 days after the completion of the examination.

B. Record of means adopted for the mode / media adopted for the publication of examination results (Website, SMS, email, etc.): **Telephone, E-mail to course group IDs. (File No. 10 and 47)**

2.5.4 A. Ensuring transparency in the evaluation process: **Students are free to see their evaluated answer sheets and also can discuss with concern faculty. They can also compare with other student's copies, if feel so.**

B. Measures taken to ensure confidentiality: **We have separate room with restricted entry for examination related issues.**

C. Pre-examination processes – Examination Time table generation, student list generation, Invigilators, Attendance sheet, : **File no. 10**
Departmental committee discuss and decide all the above mentioned issues and the committee decides time table and schedule. Students also suggest their ease on time table.

D. Results of students course wise and its analysis
(File No. 14, 23 and 47)

2.6. Student Performance and Learning Outcomes

2.6.1 A. Write up of articulation of its Graduate Attributes of the department:

Students are guide by faculty in such a way that they can utilize their soft and hard skills to perform good research and quality publications. SBT provide theoretical concepts as well as practical skills to students. A fair number of students crack various national/ international examinations due to above reasons.

B. Facilitation of monitor the implementation and outcome: Monitored by Head of the department

- 2.6.2 A. Record of learning outcomes for its academic programmes:
B. Record of making students and staff are made aware of these:

(File no. 12)

- 2.6.3 Write up of department teaching, learning and assessment strategies structured to facilitate the achievement of the intended learning outcomes:

Assessment strategies are as per Ordinance 31. Class tests, assignments and End-Semester Examination and Comprehensive evaluation of a student by Viva-voce. University courses are designed to target three aspects, one is the basic concepts second is advance course and subjects components and third is the employability. School accesses students from examination, tests, scientific discussions, Power point based presentations are delivered by students (especially on advance topics preferably not part of syllabus). This student centric teaching learning approach is supplemented by quizzes and problems in assignments. To access scientific temperament, practical and theoretical skills, fourth semester is completely dedicated to research work followed by presentation and viva-voce. These criteria provide overall personality and intellectual assessment of the students. The school is successfully having intended outcomes. Most of our students are pursuing higher education and research and few are serving corporate sector and public services.

- 2.6.4 Collection and analysis of data on student learning outcomes and use it to overcome the barriers to learning: **File no. 12.**

- 2.6.5 Write up of new technologies deployed by the department in enhancing student learning and evaluation and how does it seek to meet fresh/ future challenges

SBT has procured number of advance equipments including ELISA, PCR, CO2 incubator, Fermenter and HPLC to enhance the research quality to meet global requirement. We also provide assignments to students related to research articles published in International journals of repute to enhance learning of current research areas and to prepare them for future challenges.

2.6.6 Any other information regarding Teaching, Learning and Evaluation which the department would like to include.

CRITERION III: RESEARCH, CONSULTANCY AND EXTENSION

III.1 Year-wise Publications in the department: **58 (2007-2013).**

III.2 Number of papers published in peer reviewed journals (national /

international): **135.**

Monographs (Short books): **03**

Chapters in Books: **10**

Edited Books: **10**

Dr. Anil Kumar: Total impact factor~ 200

Number listed in International Database (For *e.g.* Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.): **Almost all the documents listed in International databases.**

Citation Index – range / average **Dr. H.S. Parmar: 16 International publications (total 200 citations in Google Scholar, while 116 in Scopus)**

h-index-8 (as per Scopus) and 12.5 as per Google Scholar

<http://www.scopus.com/authid/detail.url?authorId=14631129700>

Impact Factor – range / average : **Dr. H.S. Parmar- Total 40, average is 2.5**

Please refer **File no. 48 for all the details and list of books, chapters and publications.**

III.3 List and Records and Details of patents and income generated: **Nil.**

III.4 List and Record of Areas of consultancy and income generated: **Nil**

- 1) III.6 List and Record of Faculty selected nationally/internationally to visit other laboratories in India and abroad: **Dr. Anil Kumar Awarded Biotechnology Overseas Associateship from DBT. He availed the Associateship from Oct., 2003 to January , 2004 (in Jack Preiss Lab, MSU, USA)**

III.6 List and Record of Faculty serving in

National committees b) International committees c) Editorial Boards d) any other (please specify): **Dr. Anil Kumar and Dr. H.S. Parmar** (Reviewer of many International journals especially of Elsevier publishers).

Dr. Anil Kumar:

1. **Expert member in the Ministry of Human Resource development, Govt. of India, New Delhi for the selection of candidates for Japan, Russia, Australia, Germany and Commonwealth etc.**
- 2) **He has been expert (Governor's/Chancellor's nominee) in the selection of teachers (Professors, Readers, and Lecturers) in number of universities.**
- 3) **Member of Advisory board for the book 'Dictionary of Biotechnology' authored by Somani.**

- 4) **Chairperson of Board of Studies of Biotechnology, Devi Ahilya University, Indore.**
- 5) **External member on the Board of Studies in Biotechnology at Amravati University, Amravati.**
- 6) **External member on the Faculty board of Life Science, Jiwaji University, Gwalior.**
- 7) **Convener Indore Chapter and life member of Society of Biological Chemists, Plant Research, and Indian Science Congress Association, India**
- 8) **Received Distinguished Leadership award of American Biographical Institute and has been nominated as Deputy Governor in their Board.**
- 9) **Name in International Directory published by The American Chemical Society, USA.**
- 10) **Expert member of the Standing Committee of the Madhya Pradesh State Government.**
- 11) **Elected Senate member 2007 for Devi Ahilya University Court.**
- 12) **External member on the Post Graduate Board of Studies in Biotechnology at Nagarjuna University, Nagarjuna Nagar, Guntur.**
- 13) **Member of various International Societies like New York Academy of Sciences, USA, Bioencapsulation Research Group, France.**
- 14) **Member of Biotechnology Club, BCIL, New Delhi.**
- 15) **CIMAP Lucknow (an organization of CSIR, New Delhi) felicitated Dr. Anil Kumar for his valuable contributions in the field of Biotechnology.**
- 16) **Dr. Anil Kumar was awarded Fellow of the Year 2000 by the Society of Plant Research.**
- 17) **Dr. Anil Kumar's name has been included in the book 'Curriculum Vitae International' of International Biographical Research Foundation.**
- 18) **Dr. Anil Kumar's name has been included in Marquis Who's Who, Asian/American Who's Who and in many other publications.**
- 19) **Dr. Kumar has been member (2009-2012) of the Executive Council of Devi Ahilya University, Indore.**
- 20) **Dr. Kumar is life member of Biotechnology Society of India, member of the Society for Bioscience and Bioengineering, Japan, member of the American**

Society of Biochemistry and Molecular Biology and member of the American Chemical Society.

- 21) Dr. Kumar has been awarded Biotechnology Overseas Associateship from DBT. He availed the Associateship from Oct., 2003 to January , 2004 (in Jack Preiss Lab, MSU, USA)**
- 22) Dr. Kumar was nominated member, International Scientific Committee of 4th World Congress of Cellular and Molecular Biology Society held on October 7-12, 2005 at Poitiers, France. He also Chaired a Symposium entitled ‘ Enzymes of carbohydrate metabolism and their exploitation in biotechnology’ in the Congress.**
- 23) Dr. Anil Kumar has been nominated President for the Society for Science & Environment for the year 2007. He was Vice-President of the Society for the year 2006.**
- 24) Dr. Anil Kumar organized and hosted National Conference on Biotechnology, Science & Environment on Dec. 28-29, 2006 at the School of Biotechnology of the University.**
- 25) Dr. Kumar is Associate Editor for the Journal of Cell & Tissue Research. Besides, he is member of the Editorial Board of many journals Viz. Journal of Proteomics & Bioinformatics, Journal of Computer Science & Systems Biology, Current Trends in Biotechnology and Pharmacy, Biotechnology & Molecular Biology Reviews etc.**
- 26) Dr. Anil Kumar was the Organizer & President of the 5th World Congress of Cellular and Molecular Biology held on Nov. 2-6, 2009 at the Devi Ahilya University, Indore, India (jointly in collaboration of World Society for Cellular & Molecular Biology).**
- 27) Dr. Anil Kumar has been offered Honorary Fellowship of Association of Biotechnology & Pharmacy**
- 28) Dr. Anil Kumar has been offered Honorary Fellowship of World Society of Cellular & Molecular Biology, France**

III.7 Research thrust area recognized by funding agencies for the department:

Bioinformatics sub-centre distributed from DBT, New Delhi.

III.8 Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies and grants received project-wise.

M.Sc. Biotechnology Program sponsored from DBT, New Delhi (since 1991 till

to date). Total grant received so far is approx. 2 Crores.

Bioinformatics sub-centre: Total grant received till to date is approx. 1 crore.

Other projects: File no. 38

1. Purification, characterization and immobilization of starch phosphorylase and amylase from sorghum DST project.
2. Purification, characterization and immobilization of pectinase and cellulase enzymes CSIR project.
3. Purification and characterization of starch phosphorylase from a C4 plant leaf MPCOST project.
4. Assistance for up-grading Biotechnology facility- MPCOST project
5. Krityanand Kumar Mahatman DBT-TWAS Fellowship- TWAS-DBT project (PI- Dr. Anil Kumar)

(File no.18 and 27)

6. Distributed Bioinformatics Sub Centre project – DBT project- (PI- Dr. Anil Kumar)
7. M.Sc. Biotechnology program- DBT project (PI-Dr. Anil Kumar)
Dr. H.S. Parmar received Major Research project from UGC, New Delhi. The total grant is Rs. 9,33,000/- for three years

III.9 List and details of Inter-institutional collaborative projects and grants received:
Nil.

All India collaboration b) International **(File no. 35 and 36).**

III.10 List and details of Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, etc.; total grants received.

M.SC. Biotechnology Program sponsored from DBT, New Delhi (since 1991 till to date). Total grant received so far is approx. 2 Crores.

Bioinformatics sub-centre: Total grant received till to date is approx. 1 crore.

III.11 List and Details of Research facility / centre with

- state recognition
- national recognition
- international recognition. **N.A.**

III.12 List and details of Special research laboratories sponsored by / created by industry or corporate bodies: **Nil.**

a. Promotion of Research: We have Laboratory in charge to look after the particular laboratory and arrangements (copies of departmental committees enclosed).

Note: In our University this committee being constituted which is fostering research in all the departments. Dr. Anil Kumar is the coordinator.

3.1.1 A. Composition of Departmental Research Committee, List of members and minutes of its meeting

B. Records of DRC regarding monitoring and addressing issues related to research

C. Record of DRC recommendations which have been implemented and their impact.

(File No. 49)

3.1.2 Information of research centers in its affiliated / constituent colleges which are monitored by the DRC of the department: **No research centre in Bio-Technology in Affiliated Colleges.**

3.1.3 Details of the: **Being improved from 2013-14**

advanced funds for the sanctioned projects

* providing seed money

* Simplification of procedures related to sanctions / purchases to be made by the investigators

* Autonomy to the principal investigator/coordinator for utilizing overhead charges

* Timely release of grants

* Timely auditing

* Submitted utilization certificates to the funding authorities

3.1.4 Record of interdisciplinary research promoted

* with other departments /schools of the university and: **Dr. H.S. Parmar worked in collaboration with Dr. E.Manivannan, Lecturer, School of Pharmacy, DAVV, Indore (please refer our list of publications).**

* collaboration with national/international institutes/industries: **List of national/international collaborations enclosed.**

(File no. 35 and 36)

3.1.5 Details of workshops/ training programmes/ sensitization programmes conducted by the department to promote a research culture on campus: **File no. 19.**

3.1.6 A. Details of visits of researchers of eminence to visit the campus as adjunct

professors: **Dr. Govindjee, Emeritus Professor, Albana University, USA, delivered lecture on Photosynthesis on 19th Oct 2012.**

B. Impact of such efforts on the research activities of the university: **It motivated our students towards research, especially in the area of Photosynthesis.**

3.1.7 A. Percentage of the total budget of the department which is earmarked for research: **Approximately 30 %.**

B. Details of heads of expenditure, financial allocation and actual utilization: **File no. 29.**

3.1.8 A. Details of University funded research and awarded Post Doctoral Fellowships/Research Associate ships: **Nil.**

B. List of students registered with record of source of funding by the university and other sources: **One postdoc from Africa through CV Raman fellowship (DST-FICCI), India (File no. 33 and 34).**

3.1.10 A. List and percentage of faculty which have utilized the sabbatical leave for pursuit of higher research in premier institutions within the country and abroad: **Nil**

B. Record of the output of these scholars: **Nil.**

3.1.11 A. Details with photographs of national and international conferences organized (**File no. 25**).

B. List highlighting the names of eminent scientists/scholars who participated in these events (**File no 19**).

3.2 Resource Mobilization for Research

3.2.1 Financial provisions made in the university budget for supporting students' research projects : **DBT provides thesis grant (50,000/-) per student for research work.**

3.2.2 A. Special efforts to encourage its faculty to file for patents: **Nil.**

B. List of registered and accepted patents. **Nil.**

3.2.3 Details of ongoing research projects of faculty:

	Year wise	Number	Name of the project	Name of the funding agency	Total grant received
A. University awarded projects: Nil					
Minor projects					
Major projects					
B. Other agencies - national and international (specify)					

Minor projects					
Major projects	1991- till to date		M.Sc. Biotechnology Program	DBT, New Delhi	More than 2Crores
	1993- till to date		Bioinformatics Sub-centre distributed	DBT, New Delhi	More than 01 Crore

Note: UGC Major research project sanctioned to Dr. H.S. Parmar of worth Rs. 9,33,000/-

3.2.4 A. Record of projects sponsored by the industry/corporate houses: **Planned in 2013-14.**

B. Details such as the name of the project, funding agency and grants received. **NA.**

3.2.5 A. Details of Department recognition for their research activities by national / international agencies (UGC-SAP, CAS; Department with Potential for Excellence; DST-FIST; DBT, ICSSR, ICHR, ICPR, etc.) and the quantum of assistance received:

1. DBT Sponsored M.Sc. Biotechnology and Bioinformatics Sub-Centre.

2. M.Sc. Biotechnology program is fully funded from DBT, New Delhi.

B. Record of any two significant outcomes or breakthroughs achieved by this recognition:

1. Laboratory with high-tech equipments.

2. Quality research work substantiated by number of research publications in International Journals.

3.2.6 List details of

a. research projects completed and grants received (funded by National/International agencies): **List of research projects sanctioned to Dr. Anil Kumar. (File no. 19)**

b. Inter-institutional collaborative projects and grants received: **Nil.**

i) All India collaboration

ii) International

3.3 Research Facilities

3.3.1 A. Infrastructure in the department to facilitate research: **File no. 30**

B. Strategies have been evolved to meet the needs of researchers in emerging disciplines: **Our faculty supervise M.Sc. projects that are mainly funded through DBT M.Sc. Biotechnology program and departmental grants. Besides, we also get an infrastructure grants (12.0 lacs) from MPCOST, Bhopal.**

3.3.2 A. Information and Resources catering to the needs of researchers of the department:

We have well furnished laboratories and computer laboratory. Software for Bioinformatics and statistics are also accessible.

B. Details of the facility. **File no. 50**

- 3.3.3 Record of University Science Instrumentation Centre (USIC) facilities been made available to research scholars: **Yes, USIC provides help to repair instrument and glasswares.**
- 3.3.4 Provision of residential facilities (with computer and Internet facilities) for research scholars, post-doctoral fellows, research associates, summer fellows of various academies and visiting scientists (national/international): **Our campus is Wi-Fi for internet access. They study in hostels where computers and Wi-Fi is available.**
- 3.3.5 Details of Uses of the Facilities of IUC, CAT, NRCS, IIT Indore and other specialized Research Centers for research: **Our students usually work as a M.Sc. dissertation trainee and JRF, Ph.D. scholars in these institutes.**

3.4 Research Publications and Awards

- 3.4.1 Research journal published, if any, from the department(s)? If yes, indicate the composition of the editorial board, editorial policies and state whether it/they is/are listed in any international database. **No Journal is published from the department magazine. All papers are communicated to establish international and national Journals which are listed in various databases.**
- 3.4.2 Details of publications by the faculty: **List enclosed for each faculty individually.**
- * Number of papers published in peer reviewed journals (national / international):135
 - * Monographs:03
 - * Chapters in Books:10
 - * Books edited:10
 - * Books with ISBN with details of publishers: Available in detailed list
 - * Number listed in International Database (For *e.g.* Web of Science, Scopus, Humanities International Complete, EBSCO host, etc.)
 - * Citation Index – range / average Dr. Anil Kumar 20
 - * Dr. H.S. Parmar 08 (as per Scopus) and 12.5 (as per Google Scholar)
 - * SNIP: Not known
 - * SJR: Not known
 - * Impact Factor – range / average Dr. Anil Kumar cumulative ~200 and average 1.732
 - * Dr. H.S. Parmar cumulative 40 and average 2.5

- * h-index Dr. Anil Kumar 20
- * Dr. H.S. Parmar 08 (as per Scopus) and 12.5 (as per Google Scholar)
- *
- *

(File no. 8 and 48)

3.4.3 Details of

- * faculty serving on the editorial boards of national and international journals
- * faculty serving as members of steering committees of international conferences recognized by reputed organizations / societies
- * **Dr. Kumar is life member of Biotechnology Society of India**
- * **Member of the Society for Bioscience and Bioengineering, Japan**
- * **Member of the American Society of Biochemistry and Molecular Biology and member of the American Chemical Society.**
- * **Dr. Kumar has been awarded Biotechnology Overseas Associateship from DBT. He availed the Associateship from Oct., 2003 to January , 2004 (in Jack Preiss Lab, MSU, USA)**
- * **Dr. Kumar was nominated member, International Scientific Committee of 4th World Congress of Cellular and Molecular Biology Society held on October 7-12, 2005 at Poitiers, France. He also Chaired a Symposium entitled ‘ Enzymes of carbohydrate metabolism and their exploitation in biotechnology’ in the Congress.**
- * **Dr. Anil Kumar has been nominated President for the Society for Science & Environment for the year 2007. He was Vice-President of the Society for the year 2006.**
- * **Dr. Anil Kumar organized and hosted National Conference on Biotechnology, Science & Environment on Dec. 28-29, 2006 at the School of Biotechnology of the University.**
- * **Dr. Kumar is Associate Editor for the Journal of Cell & Tissue Research. Besides, he is member of the Editorial Board of many journals Viz. Journal of Proteomics & Bioinformatics, Journal of Computer Science & Systems Biology, Current Trends in Biotechnology and Pharmacy, Biotechnology & Molecular Biology Reviews etc.**
- * **Dr. Anil Kumar was the Organizer & President of the 5th World Congress of Cellular and Molecular Biology held on Nov. 2-6, 2009 at the Devi**

Ahilya University, Indore, India (jointly in collaboration of World Society for Cellular & Molecular Biology).

- * **Dr. Anil Kumar has been offered Honorary Fellowships of Association of Biotechnology & Pharmacy and World Society of Cellular & Molecular Biology, France**

3.4.4 Details of

- * research awards received by the faculty and students:

Dr. H.S. Parmar received Best Science Research Award-2009-10 Sponsored from MPCST, Bhopal (in student category).

- * national and international recognition received by the faculty from reputed professional bodies and agencies:

* **Dr. Anil Kumar:**

1. **Life member of Biotechnology Society of India, Member of the Society for Bioscience and Bioengineering, Japan, Member of the American Society of Biochemistry and Molecular Biology, Member of the American Chemical Society.**
2. **Biotechnology Overseas Associate ship from DBT. He availed the Associateship from Oct., 2003 to January , 2004 (in Jack Preiss Lab, MSU, USA).**
3. **Nominated member, International Scientific Committee of 4th World Congress of Cellular and Molecular Biology Society held on October 7-12, 2005 at Poitiers, France. He also Chaired a Symposium entitled ‘ Enzymes of carbohydrate metabolism and their exploitation in biotechnology’ in the Congress.**
4. **Nominated President for the Society for Science & Environment for the year 2007. He was Vice-President of the Society for the year 2006.**
5. **Organizer and hosted National Conference on Biotechnology, Science & Environment on Dec. 28-29, 2006 at the School of Biotechnology of the University.**
6. **Associate Editor for the Journal of Cell & Tissue Research. Besides, he is member of the Editorial Board of many journals Viz. Journal of Proteomics & Bioinformatics, Journal of Computer Science & Systems Biology, Current Trends in Biotechnology and Pharmacy, Biotechnology & Molecular Biology Reviews etc.**

7. **Organizer & President of the 5th World Congress of Cellular and Molecular Biology held on Nov. 2-6, 2009 at the Devi Ahilya University, Indore, India (jointly in collaboration of World Society for Cellular & Molecular Biology).**

8. **Honorary Fellow of Association of Biotechnology & Pharmacy**

9. **Honorary Fellow of World Society of Cellular & Molecular Biology, France**

Dr. H.S. Parmar:

- **Expert VYAPAM Bhopal.**
- **Reviewer of number of International journals (Diabetes Research and Clinical Practice; Journal of medical hypotheses; African Journal of Biotechnology; Journal of Medicine and Medical Sciences etc.).**

3.4.5 A. Number of successful M.Phil. and Ph.D. scholars guided per faculty during the last four years: **File no. 27.**

B. University participate in *Shodhganga* by depositing the Ph.D. theses with INFLIBNET for electronic dissemination through open access: **Yes.**

3.4.6 A. Promotion e interdisciplinary research

B. Number of interdepartmental / interdisciplinary research projects undertaken: **Dr. H.S. Parmar works for few research projects in association with Dr. E. Manivannan, Lecturer, School of Pharmacy, D.A.V.V., Indore.**

C. Mention the number of departments involved in such endeavours: **School of Pharmacy (in student category).**

3.4.8 List of University instituted research awards to the faculty of the Department

Dr. H.S. Parmar received Best Science Research Award-2009-10 Sponsored from MPCST, Bhopal (in student category).

3.4.9 Details of incentives given to the faculty for receiving state, national and international recognition for research contributions: **Departmental committee felicitates in a function to the faculty receiving National/International recognition.**

3.5 Consultancy: University has set a task force to enable consultancies. Members are

1. **Director,IET (Coordinator)**
2. **Dean, Faculty of Engg. Science (Member)**

3. **Dean, Faculty of Engineering (Member)**
4. **Dean, Faculty of Life Sciences (Member)**
5. **Director, IMS (Member)**
6. **Director, IIPS (Member)**
7. **Head, School of Economics (Member)**
8. **Head, School of commerce (Member)**
9. **Head, School of Pharmacy (Member)**
10. **Co ordinator, University placement coordinator cell (Member)**
11. **Prof. Shashi Prakash, IET (Coordinator)**

3.5.1 Important consultancies undertaken by the department during the last four years.

3.5.2 A. Department participation in university-industry cell: **Yes. University has initiated a task force. Members are mentioned above.**

B. If yes, what is its scope and range of activities:

Our department organized two days seminar on “Industrial facet of biotechnology (24-25 Jan, 2012)” sponsored from UGC, New Delhi where Dr. Sidhdharth De from Advinus therapeutics Pvt. Ltd. Pune, Dr. K.C. Gulla, Biocon Pvt. Ltd., Bangalore and Dr. Alok Diwedi, NAFED, Indore delivered their lectures on industrial aspects. They also told about the company requirements and how to apply for positions there (document enclosed).

3.5.3 Publicizing the expertise of the department for consultancy services:

Dr. H.S. Parmar received an offer from USA based company Herbacraft pvt. Ltd.

3.6 Extension Activities and Institutional Social Responsibility (ISR)

3.6.1 A. Department records of sensitization of faculty and students on its Institutional Social Responsibilities: **Induction program of fresher’s student’s organized (25.08.2012). Institutional social responsibilities were also discussed.**

B. List the social outreach programmes which have created an impact on students’ campus experience during the last four years. **Blood donation camp, NCC, Campus cleaning and maintenance of the departmental gardens.**

3.6.2 Promotion of neighborhood network and student engagement and holistic development of students and sustained community development?

We have discussed about the good life style, how to bear work and other pressures without affecting health? How to be happy? What are our social responsibilities? How to become a good human being besides a successful

person?

- 3.6.3 Participation of the students and faculty in extension activities including participation in NSS, NCC, YRC and other National/ International programmes: **We have hosted two seminars one of patenting and IPR issues sponsored from NRDC, New Delhi and second one on JALVAYU PARIVARTAN sponsored from EPCO, Bhopal which is part of extension activities.**
- 3.6.4 Tracking the students' involvement in various social movements / activities which promote citizenship roles: **We have celebrated the following events this year:**
- 1. Shramdan in Garden dated 14.02.2013.**
 - 2. Celebrated "Basant Utsav" (15.02.2013).**
 - 3. Interdepartmental games (from February 28 to March 02, 2013).**
 - 4. Convocation ceremony of University in which School provided Gold medal to the topper students :19th Feb 2013**
 - 5. Khan river cleanliness drive : 14th – 17th March 2013**
 - 6. Campus cleanliness: 14th Feb 2013**
 - 7. Energy conservation steps and use of bicycle at least a day per week: Students and faculties are encouraged to use bicycle in the campus at least 2 days a week.**
- 3.6.6 Write up of the values inculcated and skills learnt during extension activities. **Our events inspired them to work for every small aspects without any hesitation such as cleaning and beautification of our institute, what are the challenges of climate change, what is our social and cultural flavor and how to retain it etc.**
- 3.6.7 Department community in its outreach activities: **Departmental Committees have faculty and students in their composition for the outreach activities.**
- 3.6.8 Details of awards received by the institution for extension activities and/contributions to social/community development during the last four years: **SBT have received the following awards:**
SBT received 8th rank in ABLE-BEST-2012 for the idea to produce ethanol from thermal power chimney pollutants.
Best discipline award 2012 at University level during interdepartmental games.

3.7 Collaboration

A. MOU Copies and Record of collaboration with other agencies impacted the visibility, identity and diversity of activities on campus: **(File no. 35)**

1. MOU signed for research collaboration with Institute of Animal Physiology and Genetics, Libechov, Czech Republic.
2. Collaboration is on progress with Kunk University, Korea.
3. Collaborate for summer training programme with University of Poitiers, France.
4. NCCS, Pune.
5. University of Saskatchewan, Saskatoon, Canada
6. National Research & Development Corp., New Delhi
7. Centre for Genomics & Applied Gene Technology ,Institute of Integrated Omics & Applied Biotechnology Purba Medinipur
8. Institute of Transgene Life Sciences, Lucknow
9. Jain Irrigation Systems Ltd., Jalgaon
10. NEERI, Nagpur

B. Benefits academically and financially because of collaborations:

Two French students from University of Poitiers carried out summer training program at our School (Document enclosed).

One student Mr. Rajbardhan Got Ph.D. position with fellowship at Czech Republic.

Ms. Muskan Bhatia received Ph.D. opportunity at university of Saskatchewan, Cannada.

3.7.2 Linkages resulted in

- * Curriculum development: **Discussed the curriculum in French universities.**
- * Internship: **Our students carried out dissertation work at NEERI, Nagpur and IIOAB, Purba Medinipur.**
- * On-the-job training: **Nil.**
- * Faculty exchange and development: **Dr. H.S. Parmar applied for DBT-CREST Fellowship-2013-14.**
- * Research: **Ph.D. awarded to Dr. Monika Dhote as collaboration with NEERI, Nagpur. Disseration research work carried out by students at IIOAB, Medinipur.**
- * Publication: **Yes, number of publications in good journals are the outcome of our collaborations (please refer publication list).**
- * Consultancy: **Nil.**
- * Extension: **Nil.**

Student placement: **One student Mr. Rajbardhan got Ph.D. position with fellowship at Czech Republic.**

Ms. Muskan Bhatia received Ph.D. opportunity at university of

Saskatchewan, Canada.

* Any other (please specify): **Nil.**

- 3.7.3 A. Copy of MoUs with institutions of national/international importance/other universities/ industries/corporate houses etc. **(refer File No. 35)**
B. Record of enhanced the research and development activities: **Publications in collaborations are themselves best record of this practice.**
- 3.7.4 Have the university-industry interactions resulted in the establishment / creation of highly specialized laboratories / facilities? **Nil.**
- 3.7.5 Any other information regarding Research, Consultancy and Extension, which the university would like to include.

CRITERION IV: INFRASTRUCTURE AND LEARNING RESOURCES

4.1 Physical Facilities

- 4.1.1 A. Details of Department physical infrastructure: **(refer File no. 51).**
B. Maintenance of Laboratories for its optimal utilization: **Committees of faculties constituted to look after different labs and take cares of the maintenance for optimal utilization.**
- C. Maintenance of Computers for its optimal utilization: **This maintenance done mainly through manpower of Bioinformatics sub-centre, school also outsource maintenance, when required.**
- D. Maintenance of UPSes, Power Supplies: **Yes, Using outsourcing.**
- E. Maintenance of support services, sanitation, first aid boxes: **Yes, we are utilizing contract services for the same. Health center is nearly 60 m from the School. First aid box available in each laboratory.**
- F. Maintenance of building, garden, indoor games structure: **Maintenance of building by Engineering section of University, maintenance of garden by department staff and student volunteers. Indore games are by student representatives. (Refer file no. 14)**
- 4.1.2 New initiatives for Infrastructure for promote a good teaching-learning environment- Internet, Wi-fi, Power Point Projectors, Video Equipment: **We have procured projectors and computers in each classroom and also having computer lab to students and faculties. (Refer file no. 52)**
- 4.1.3 Physical ambience for the faculty in terms of adequate research laboratories, computing facilities and allied services: **We have very good ambience to conduct research work as we have sufficient no. of labs and facilities required to perform quality work (Refer file no. 30).**

4.1.4 List of Facilities like office room, common room and separate rest rooms for women students and staff: **School has separate rooms for faculties and students like common room (boys and girls separate).**

4.1.5 List of the infrastructure facilities are disabled-friendly: **Ramp planned in 2013-14. IT centre has internet facility for disabled students and training is also given to them to use internet.**

4.1.8 Departmental special facilities are available on campus to promote students' interest in sports and cultural events/activities: **Gymnasium and play grounds and Auditorium at University level for faculty, staff and students.**

4.2 Library as a Learning Resource

4.2.1 Details of departmental library facilities: **School has approx. 3000 books on various topics.**

4.2.2 Provide details of the departmental library:

- * Total area of the library (in Sq. Mts.): **~ 1000 Sq. mts.**
- * Total seating capacity: **50**
- * Working hours (on working days, on holidays, before examination, during examination, during vacation): **During working days 10 AM to-5 AM.**
- * Layout of the library (individual reading carrels, lounge area for browsing and relaxed reading, IT zone for accessing e-resources): **We have garden space near to library and also somehow isolated to provide peaceful atmosphere.**
- * Clear and prominent display of floor plan:
- * Adequate sign boards; **Yes**
- * Fire alarm: **Alarm being installed in 2013-2014.**
- * Access to differently-abled users and : **NA**
- * Mode of access to collection: **Physical**
- * Electronic Journals and e books are available in the department and Central library

4.2.3 Departmental library holdings:

- a) Print (books, back volumes and theses): **3000 print books, more than 1000 journals, 24 Ph.D. theses and 200 M.Sc. dissertation theses**
- b) Average number of books added during the last three years: **1000**

- c) Non Print (Audio Video, CDs, and Downloaded Articles): **We have CDs of some books (around 50 in Nos.). Video lectures and downloaded articles are also easily accessible.**
 - d) Electronic (e-books, e-journals): **Electronic journals and books are available for free access publishers also University has a list of journals subscribed for faculties and students.**
 - e) Special collections (e.g. text books, reference books, standards, patents): **Nil.**
- i. Records of tools the library deploys to provide access to the collection:
- * OPAC
 - * Electronic Resource Management package for e-journals
 - * Federated searching tools to search articles in multiple databases
 - * Library Website
 - * In-house/remote access to e-publications

Note: Based on the markings of racks and numbering of books.

4.2.5 Use of ICT deployed in the library:

- * Library automation : **School has automated library and have approx. 900 books. Rest of the books would recently be entered.**
- * Total number of computers for public access : **Library has 2 computers with internet.**
- * Total numbers of printers for public access : **School has 5 printers for student and faculty use.**
- * Internet band width speed: **1 GB**
- * Institutional Repository : **N.A.**
- * Content management system for e-learning : **School has a system of using power point presentation for seminars and lectures. Also video films have been shown related to subjects.**
- * Participation in resource sharing networks/consortia (like INFLIBNET) : **N.A.**

4.2.6 Details (per year) with regard to

- * Ratio of library books to students enrolled: **30**
- * Average number of books added during the last four years: **1250**
- * Assistance in searching Databases: **Nil**
- * INFLIBNET/IUC facilities: **Nil.**

7.2.8 Annual departmental library budget and the amount spent for purchasing new books and journals:

Budget during 2011-12

From DBT: 1,49,000/-

From Self finance: 2,00000/-

UGC XI Plan: 7,00000/-

Total: 10,49000/-

Total spent amount: 8,42,912/-

Besides Central library spent on books related to SBT courses.

4.3 IT Infrastructure

4.3.1 Details of Department IT and ICT Infrastructure :

LCD Projectors: 06

Computer Labs: 02

Ph. D Scholar Computer Lab :01

Bioinformatics Sub-centre: 01

Faculty Rooms having IT facility

Wi-Fi Campus

4.3.2 Details of the computing facilities i.e., hardware and software.

- Number of systems with individual configurations :

P4 System : 15

Dual Core : 13

Core 2 Duo: 25

I5 processor: 05

Laptops and Notebooks: 07

- Computer-student ratio: **1:2**
- Dedicated computing facilities: **We are providing various bioinformatics tools and biostatistics softwares such as MATLAB, AutoDock, Molegro Virtual Docker, Modeller9.11, Swiss PDB, Reference Manager11, Chimera etc.**
- LAN facility: **IT centre is providing LAN facility with 1GBPS speed.**
- Proprietary software :

MS Office 2003, Quick Heal Pro Antivirus 2013, Operating Sytem,

Operating System software:

❖ **WINDOWS Server 2003**

❖ **Windows Vista**

❖ **Linux 7.0, 8.0**

❖ **WINDOWS XP, NT, 98.**

Front-end developing software:

- ❖ **Microsoft Visual Studio .NET 2003**

Database software:

- ❖ **Microsoft SQL Server 7.0**
- ❖ **Microsoft SQL Server 2000**

Office automation software:

MS Office 2003

MS Office 97

Lotus SmartSuite

Antiviral software:

Quick Heal Pro Antivirus 2013

Trend MICRO Office Scan (from IT centre)

- Number of nodes/ computers with Internet facility: **65**
- Any other (please specify)

- 4.3.3 Plans and strategies for deploying and upgrading the IT infrastructure and associated facilities : **Another new computer lab and up gradation of some softwares is also to be done.**
- 4.3.4 Details on access to on-line teaching and learning resources and other knowledge and information database/packages provided to the staff and students for quality teaching, learning and research. : **Our classroom projectors are also connected with Internet.**
- 4.3.5 IT facilities available to individual teachers for effective teaching and quality research: **Every faculty has allotted with a system with Internet facility.**
- 4.3.8 A. Details of ICT-enabled classrooms/learning spaces available: **All class rooms /Seminar Hall (05) are ICT enabled.**
B. Record of utilization for enhancing the quality of teaching and learning: **Power point presentations are available as record. Also student feed back copies and analysis available.**
- 4.3.9 Records of Faculty and computer- aided teaching-learning materials: **SBT has uploaded copies of PPTs and research articles on the university website.**
- 4.3.10 Department availing of the National Knowledge Network connectivity: **We are using various interactive sites and also accessing journals for example NATURE, JBB, Journal of Cell and tissue research and JBC etc.**
- 4.3.12 Record of Availing of web resources such as Wikipedia, dictionary and other education enhancing resources: **The Presentations of classes are available as a record.**

- 4.3.13 Department budget for the update, deployment and maintenance of computers: **Refer file no. 52**
- 4.3.14 Details of plans envisioned for the gradual transfer of teaching and learning from closed university information network to open environment: **Using ICTs we are gradually progressing towards information to open environment.**
- 4.4 Any other information regarding Infrastructure and Learning Resources which the university would like to include.

CRITERION V: STUDENT SUPPORT AND PROGRESSION

5.1 Student Mentoring and Support

- 5.1.1 Department system, structural and functional characteristics for student support and mentoring: **Accessibility of all the faculties during all working hours. Also in case of any emergency or immediate guidance 24 X7 students are free to get any guidance. Student teacher meetings being held.**
- 5.1.2 ‘Apart from classroom interaction’, the provisions available for academic mentoring: **Mentors are appointed with each student for academic ,life, social and career counseling. Any time any where students can ask any query any guidance. Dr. H.S. Parmar delivered lecture on (i) How to design experiments? (ii) How to write technical notes (iii) How to develop Scientific ideas?**
- 5.1.3 Record of department students utilization of personal enhancement and development schemes such as career counseling, soft skill development, career-path-identification, and orientation to well-being for its students:
SBT conducts induction program, orientation program and seminars to provide them guidance from experts. Psychometric test are also planned in July 2013 to address problems and counseling of the students.
- 5.1.4 Department publish its updated prospectus and handbook info annually on website and online access of course plans, syllabi and result
Yes, available on site. www.biotech.dauniv.ac.in
- 5.1.5 A. Records of the Timely dissipation of financial aid: **Yes**
1. Tables for type and number of scholarships/free-ships given to the students during the last four years the following categories: UG/PG/M.Phil/Ph.D./Diploma/others: **For P.G. Students of Biotechnology DBT, New Delhi provide Rs. 3000/ p.m. as fellowship while studentship in Bioinformatics sub-centre being also distributed to students. In case of SC/ST/OBC students fellowships are as per State Govt. rules. Refer file no. 44**

5.1.6 Table of percentages of students receive financial assistance from state government, central government and other national agencies (Kishore Vaigyanik Protsahan Yojana (KVPY), SN Bose Fellow, etc.): **DBT provides fellowship of Rs. 3000/- per students of M.Sc. Biotechnology.**

5.1.7 Department use of International Student Cell, number and list of foreign students: **Planned in 2013-14.**

5.1.8 Department support services available for:

- * Students participating in various competitions/conferences in India and abroad: **We provide leave and take extra classes for those students.**
- * Physically challenged / differently-abled students: **Ramp are being made in 2013**
- * SC/ST, OBC and economically weaker sections: **Taking extra classes once in 15 days during evening hours or on holidays, if students suggest.**
- * Health centre, health insurance etc. : **Available nearly 60 m away**
- * Skill development (spoken English, computer literacy, etc.): **Our syllabus makes them skilled on the mentioned aspects. Students have access to IT centre ,language ,library and career counseling and opportunity cell.**
- * performance enhancement for slow learners: **It is evident from the results that each and every student improved chronologically (95 %).**
- * exposure of students to other institutions of higher learning/ corporates/business houses, etc. **Students select in National programs of summer and dissertation trainings.**
- * publication of student magazines: **Planned in 2013-14**
- * Record of student participation in sports and extracurricular activities: **Our student mainly participate in interdepartmental games only.**

5.1.9 Placement Records: **refer File no. 12**

5.1.10 Number of students selected during campus interviews by different employers (list the employers and the number of companies who visited the campus during the last four years).

Companies in bio-tech area do not recruit in bulk, Hence placement are off-campus by e-mail and Interviews at Company sites.

5.1.11 A. Registered Alumni Association: **University is planning registered alumni association in 2013-14. Only online group is there.**

B. Record of activities and contributions to the development of the department:

Alumni provide intellectual support and sometimes financial support to junior for their placements.

C. Record of alumni meets: **Planned in 2013-14**

5.1.12 A. Committee members and record of student grievance redressal: **Usually we solve such problems during teachers student meeting. Besides we have redressal cell. We also have University Grievance Redresscell to solve problems at University level.**

B. Details of the nature of grievances reported and the redressal: **No official written complaint being received till to date. Oral grievances are solved just by a patient hearing.**

5.1.13 A. Anti-ragging committee: **We have anti-ragging committee .Refer File no. 14**

B. List of instances reported during the last four years and what action has been taken in these cases: **No case reported.**

5.1.14 Details of the cooperation rendered by parents, industry and its stakeholders to ensure the overall development of its students: **It is based only on feedbacks from these sources like online, offline and group emailing. School also conducts regularly teacher-parent meetings.**

5.1.18 A. List of participation of women students in intra- and inter-institutional sports competitions and cultural activities (**Refer File no. 53 and 14**).

B. List of participation of women students in intra- and inter-institutional sports competitions and cultural activities (**Refer File no. 53 and 14**).

5.2 Student Progression

5.2.1 Analysis of progression and trends for the last four years.

M.Sc. and Ph.D. Biotechnology

Student Progression	%
UG to PG*	
PG to M.Phil.*	
PG to M.Tech./ Ph.D.	2008: 57% 2009: 71% 2010: 66% 2011: 44% 2012: 36%

Student Progression	%
Ph.D. to Post-Doctoral	
Employed	2008: 71%
• Campus selection	2009: 92%
• Other than campus recruitment	2010: 80%
	2011: 88%
	2012: 54%

M.Sc. Genetic Engineering

Student Progression	%
UG to PG*	
PG to M.Phil.*	
PG to M.Tech./ Ph.D.	2011: 60%
	2012: 68%
Ph.D. to Post-Doctoral	
Employed	2011: 57%
• Campus selection	2012: 65%
• Other than campus recruitment	

5.2.2 Programme-wise pass percentage during the time span stipulated: **~100 % in all the programs except one student got failed in 2012 (M.Sc. Genetic Engineering) out of 21 students.**

5.2.3 Records of Number and percentage of students who appeared/qualified in examinations like UGC-CSIR-NET, UGC-NET, SLET, ATE / CAT / GRE / TOFEL / GMAT / Central / State services, Defense, Civil Services, etc.

In UGC-CSIR-NET-100 %

GRE/TOEFL: 10%

Others: 30 %

Refer File no. 12

5.2.4 List category-wise with details regarding the number of Ph.D./D.Litt./D.Sc. theses submitted/ accepted/ resubmitted/ rejected in the last four years **(List enclosed). 05 awarded (04 General and 01 SC) and 01 submitted (General). No thesis rejected.**

5.3 Student Participation and Activities

5.3.1 A. List the range of sports, cultural and extracurricular activities available to students

List of activities

- a. Induction Program
- b. Orientation Program
- c. Fresher's party
- d. Farewell party
- e. Interdepartmental games
- f. Debate and Quiz competitions

B. Sports and extracurricular calendar and details of students' participation.

Sports conduct during last week of February.

Fresher's party in August.

Farewell in third week of May.

Debate and Quiz sponsored from MPCST, Bhopal in mid March.

Basant Utsav

Shram Divas celebrated (14.02.2013)

5.3.2 Details of the achievements of department students in co-curricular, extracurricular and cultural activities at different levels: University / State / Zonal / National / International, etc. during the last four years.

ABLE-BEST-2011 8 th rank (National).

Best discipline team award-2012 (University).

Won two matches of Cricket during interdepartmental games.

5.3.3 A. Gathered data and feedback from pass-out graduates: **Yes, File no. 20 and 21.**

B. Gathered data and feedback from employers: **Done.**

C. Use of the data for the growth and development of the department: **We used all the points to develop future course of actions and planning related to department.**

Refer File no. 15 and 20

5.3.4 Department special drives / campaigns for its faculty and students to promote heritage consciousness: **Nil.**

5.3.5 A. Records of Department involvement and encourage its students to publish materials like catalogues, wall magazines, departmental magazine, and other material:

Students published number of National and International research publications.

B. List the major publications/ materials brought out by the students during the last four academic sessions **(File no. 48)**.

5.3.6 A. Departmental Student and Alumni association or or any other similar body:
Only online group is available. The website link is:
<http://www.facebook.com/sbt.davvindore?fref=ts>

B. Details on its constitution, activities and funding: **Not applicable.**

5.3.7 Details of student representatives in Board of Studies, various academic and administrative bodies: **University provide for a student member in the Board of Studies. Student is selected from topper of PG Ist year.**

5.3.8 Any other information regarding Student Support and Progression which the university would like to include.

CRITERION VI: GOVERNANCE, LEADERSHIP AND MANAGEMENT

6.1 Institutional Vision and Leadership

6.1.1 State the vision and the mission of the department in line with the University

Vision

To generate intellectual and socially responsible manpower.
To develop curiosity and thirst of knowledge among students.
To develop not only good scientists but also good human being.
Constant academic excellence.

Mission

To develop globally competent professionals.
To shape the crude ideas into refined scientific approach.
To fulfill the scientific and social needs of the nation.

6.1.2 Mission statement definition for the department's distinctive characteristics in terms of addressing the needs of the society, the students it seeks to serve, the institution's tradition and value orientations, its vision for the future,

6.1.3 Write-up of

- * ensuring the organization's management system development, implementation and continuous improvement
- * interacting with its stakeholders
- * Reinforcing a culture of excellence
- * identifying organizational needs and striving to fulfill them

School of Biotechnology works in a very different working style, SBT believes both in centralization and decentralization as per the requirements. School takes suggestions of students, employees and teaching staff in the matters related to requirement of equipments, books, updating syllabus and examination schedule. School understands the changing need of time and therefore, SBT is developing and upgrading laboratories in terms of advance equipments and library for books on rare topics in the area. School believes in quality, It is reflected by culture of excellence proved by the quality publications from this School, interestingly from our P.G. students.

6.1.4 Departmental and other committees meetings: **Refer File no. 23**

6.1.6 Write-up of a culture of participative decisions in the department

Separate committees having teachers and students are assigned for different nature of jobs.

6.1.7 Record of Grooming leadership at various levels: **We have Class representatives in every stream. Besides, we also have faculty coordinators for each programs like Dr. H.S. Parmar for M.Sc. Biotechnology, Ms. Shivani Bhagwat for Gen Eng. and Ms. Neha Barve for Bioinformatics.**

6.1.10 Knowledge management strategy: **We share our experiences to students to provide them a preformed template of knowledge for their current and future use. The development of specific skills and knowledge to different groups depend upon their interests. To understand this fact we used to provide different responsibilities to people and enhance their specific skills and experiences. CDs are prepared for interesting articles, video lectures, web downloaded resources and tutorials.**

6.1.11 Write up on

* Contributing to national development:

Department understands its social responsibility to develop the society, State and Nation. We are working at every level of this hierarchy as a part of which Dr. H.S. Parmar counsel Biotechnology aspirants of Indore through a live program broadcasted on BTV Yuva. SBT makes aware our society in Biotechnology. It lectures on Government schemes. School have conducted 15 days Hands on training program on Enzyme technology for P.G. Students of M.P. Sponsored and selected through M.P. Biotechnology Council, Bhopal. SBT is generating scientific manpower serving the Nation with different capacities. So far, since 1991, 435 PG and 25 Ph.Ds. have passed out who are serving the Nation.

* Fostering global competencies among students

We are doing research of Global standard and most interestingly, P.G. Students are part of it. Besides, we also provide guidance on how to plan an experiment? How to explore a research problem? How to write manuscript? How to communicate? etc. On the basis of these capabilities our students are now part of number of Global research laboratories with leading scientists. School also provides full guidance to prepare for GRE, TOEFL and IELTS etc. so that they can get handsome fellowships for Ph.D. and research.

- * Inculcating a sound value system among students

Success is not synonymous of life, teaching the students to become a good Human being for society, Nation and Globe is an integral part of teaching at the School. School teaches to maintain high ethical values and Scientific temperament with right attitude. In fact, we taught them how to make your dreams come true by providing them formula of success eg. Goal=Dream+ planning+ hard work +time frame. All of these ideas certainly reveal faculty efforts towards inculcating sound value system among students.

- * Promoting use of technology

All of our students are well aware about the emerging technology due to their curriculum where sufficient components are IT and scientific technologies are incorporated. Our students use various database, online tools and videos for practical and research. In fact, faculty teach through research articles and further the students review more literature on the same on their own research interest and understand the process of researching.

- * Quest for excellence

Faculty always emphasize that all are working to meet Global requirement and therefore, students and faculty think at Global level so that can make India compete to prove our Nation Best at the International level. It is evident by the fact that during last 04 years, 15 International publications from our P.G. Students in Journals of repute having Good impact factor.

6.2 Strategy Development and Deployment

6.2.1 Perspective plan for development and write-up of policies and strategies to

- * work for Vision and for achieving the mission

School is changing our syllabi and course plan regularly as per changing need of time as well as able to fulfil our social responsibilities. Such as our State is rich in biodiversity, to get benefit for society out of our biodiversity, School is working on Enzyme technology, nutraceuticals and pharmaceuticals from botanicals and Biofuels etc. School conducts group discussions on various topics and left open ended ideas and questions to increase their curiosity to understand more on topic of their interests. School teaches the students that intellect without sense of humanity is dangerous and harmful. We have to develop

sense of belonging and humanity prior to develop scientific aptitude because, without these components science is harmful and dangerous. Excellence is the habit, this is all of us common attitude and thus faculty, staff and students are working with zeal and focus to maintain this excellence.

*** Enhancing Teaching and learning**

School conducts regular meeting of students and teachers and teacher-parents, to understand the differential need of students and their interests. Different methods are used to make students understand some complex topics by analysing their abilities.

*** Enhancing Research and development**

The working ambience of department is such that students and faculty are actively engaged in research, as evident by research publications. School emphasizes on developing working abilities on stand alone as well as in a group/ team. Besides, University also constituted task force for Fostering Excellence in Research which take care of departments and also conduct research audit.

*** Enhancing Community engagement**

School faculty is doing it through various methods such as to counsel our non teaching employees, their family members and friends for education, scope, research and their role for society. We also explain the drawbacks of intoxication, early age marriages, sex differentiation at social level and adverse demographic changes in society due to population explosion. However, we don't have any formal channel to directly connect to society and we are planning to materialize in this direction.

*** Enhancing Human resource planning and development**

University is advertising one vacant post of Lecturer (ST) and requested three non-teaching positions (out of 248 posts planned through University) for Department. Besides, School has trained the staff and students in such a manner that everyone can serve any work and due to this versatility in the staff and students the department is running smoothly in hassle free environment.

*** Enhancing Industry interaction**

School conducted two days long seminar on "Industrial facet of Biotechnology (24-25 Jan, 2012)" in which experts from Globally renowned companies delivered their lectures (Dr. Siddharth De, Advinus therapeutics Pvt. Ltd-TATA concern, Pune; Dr. K.C. Gulla, R&D Manager, Biocon, Bangalore; Dr. Alok Diwedi, Deputy Gen Manager, NAFED, Sanwer, Indore).

*** Enhancing Internationalisation**

Department has signed MOUs with many foreign Universities and Institutes. On the basis of these collaborations one of our students Mr. Rajbardhan is pursuing Ph.D. at Czech

Republic by availing International Fellowship. Our student(s) invited (Ms. Muskan Bhatia) for Ph.D. from University of Saskatchewan, Saskatoon, Canada. Our students can undergo training programme at Poitiers, France. Two students worked at our department from University of Poitiers, France. Besides, Dr. Krityanand Mahatman completed his Ph.D. from this department by availing TWAS fellowship from DBT. Two postdoctoral fellows are coming to join from Bangladesh and Ethiopia. (Documents enclosed).

6.2.2 Departmental organizational structure and decision making processes and their effectiveness.

Organization at departmental level is Head, Faculty, class III assistants and IV class employees. Besides, different faculty and employees serve number of different but specific nature of jobs. Every issue is discussed in Departmental Committee and manage the different situations. Head is having financial power of 25,000/- and as per requirement from faculty and office. HOD uses his power to serve the purpose. A need assessment is done prior to redesign syllabus, plan to procure equipments, furniture and major expenses.

6.2.3 Write up of functioning independently and autonomously and ensure accountability
School is running smoothly in terms of academic quality and research. Here, every one is accountable for the given job assignments and no body is irresponsible for duties due to sense of belonging which is in our ambience itself. With the help of decentralization and centralization as per requirements, department is able to work in autonomous manner, but within the boundaries of rules and regulations meant for department of the university.

6.2.5 Record of last four years, have there been any instances of court cases filed by and against the department, What were the critical issues and verdicts of the courts on these issues **Nil.**

6.2.6 Performance audit of the department by external experts
Every year our performance audit done by DBT advisory meeting and Coordinators meetings. Advisory committee consist of Vice-Chancellor, two academician (from outside the institution), one industry expert, one nominee of DBT, New Delhi, Head, Registrar, Finance Controller and faculty participate. Besides, during Viva-Voce, experts from outside the institutions also evaluate performance audit in terms of syllabus, course coverage and give suggestions at the end of each semester.

6.3 Faculty Empowerment Strategies

- 6.3.1 Outcome of the reviews of self appraisal and PBAS and important decisions taken on that: **Very Good and because of appreciation from higher authorities the quality of work further improved.**
- 6.3.3 List of teachers availing welfare schemes available for teaching and non-teaching staff: **Dr. H.S. Parmar is a member of *Pedi*.**
- 6.3.4 List and number of attracted and retained eminent faculty in last 4 years: **Nil.**
- 6.3.5 Gender audit during the last four years of the department achievements and pass percentages and its salient findings: Female 80 % Male: 20 %. Out of which 100 male absorbed in research or jobs 06 months after the completion of degree. In case of female, 55 % absorb in research or jobs, while rest got married. **(Refer File no. 12 and 18).**

6.4 Financial Management and Resource Mobilization

- 6.4.1 Statements of audited income and expenditure of academic and administrative activities of the last four years: **Refer file no. 29**
- 6.4.5 Efforts taken by the department for resource mobilization: **Department funding external agencies in 2012-13 was 31,33000/- And Department generated Rs. 1851771/- from fees in 2012-13.**
- 6.4.6 Record of endowment funds created: **We have Central account facility in the University, so department do not have any FDs or separate funds.**

6.5 Internal Quality Assurance System

- 6.5.1 Details of department internal quality assurance and sustenance system, give details.

Head is the sole custodian of the entire department. To maintain the IQAC, three courses Biotechnology, Genetic Engineering and Bioinformatics are sub divided into three coordinators Dr. H.S. Parmar, Ms. Shivani Bhagwat and Ms. Neha Barve, respectively. We also having IQAC cell where Dr. Parmar, Ms. Shivani Bhagwat and Ms. Shweta Nakul are member of it. This team works with Head to maintain the quality and improve the weaknesses. It takes into account of performance, audit and feedbacks. It closely interacts with University IQAC.

- 6.5.2 Internal workshops to improve teaching, learning and evaluation
Three workshops have been held to improve teaching learning process in 2012-13.
- 6.5.3 Record of continuously review the teaching learning process

All the issues related to teaching learning process are discussed during departmental committees. For eg. It may be evident that recently it was observed that labs maintenance quality is adversely affected then it has been decided that different faculty will be lab maintenance in charge of different labs.

- 6.5.4 Any other information regarding Governance, Leadership and Management which the university would like to include: **Nil.**

CRITERIA VII: INNOVATIONS AND BEST PRACTICES

7.1 Environment Consciousness

- 7.1.1 Department Area Green Audit details: **Department is surrounded by 03 Gardens and 01 inside the departmental building approx. 20 X 10 sq ft. of area is green at the department level.**

- 7.1.2 Departmental initiative to make the campus eco-friendly?

- * Energy conservation: **It is common practice at our department that maximum output with minimum energy consumption. In order to maintain this practice, every student and faculty switch off their monitors and systems every time before leaving even for few minutes. We don't use AC in classrooms, labs and in rooms are not used until unless required for experimental or practical purposes. Plans are also there for white paint reflective rooftops in 2013-14.**
- * Use of renewable energy: **Till to date we do not having any such device, but we are planning to procure and get funds for the same.**
- * Water harvesting: **We are suing water recharge strategies by digging the holes of different sizes on the corner side of the Gardens.**
- * Check dam construction: **Not applicable.**
- * Efforts for Carbon neutrality: **We are using plantation to address this issue.**
- * Plantation: **Yes, we have increased the number of plants in the vicinity of our department.**
- * Hazardous waste management: **Although we do not use any such hazardous materials, but if biological samples of such nature being used then discarded only after autoclaving to them.**
- * e-waste management: **We store our e-waste and after certain level it is dumped through the Nagar Nigam procedure or else through selling (following financial rules).**
- * any other (please specify): **Nil**

7.2 Innovations

- 7.2.1 Give details of innovations introduced during the last four years which have created a positive impact on the functioning of the department: **Decentralization of responsibilities was the key them which was introduced in an efficient way and as an evidence International publications of P.G. Students which represent quality enhancement.**

7.3 Best Practices

- 7.3.1 Give details of any two best practices which have contributed to better academic and administrative functioning of the department:

Format for Record of Best Practices of the department

1. Title of the Practice

Freedom of research to Master's students and versatility for nature of jobs to everyone.

2. Objectives of the Practice

The major objectives of these practices are the (a) development of research Competencies among our PG students meeting Global standards (b) To make administrative system versatile so that in case of the dealing persons are on leave or absent due to some reasons, no work will be hindered.

Our Master's students are free to conduct any experiments in extra time if they want to check any of their hypothesis or for skills enhancement. This is possible because of different laboratories in-charge who takes care of instruments and maintenance of the laboratories. This activity enhanced practical and research skills among our P.G. students and they have developed competencies meeting Global standards.

Staff of our School is distributed different nature of jobs so that everyone knows every work. Because of this we are able to meet time frame and quality of administrative works at departmental level.

This can be proved by the official records where in more than 95 % cases any file took maximum 24 hours to proceed for payment and necessary actions at University administrative level.

3. The Context

The contextual features are the high order skills required among students to be

absorbed in corporate and academic sector due to changing need of time. Second is to smoothening of the procedures devoid of any procedural delay.

4. The Practice

These practices are Unique as we have not encountered with the same in any other organization. Its outcome is also unique in this sense that our students are publishing International journals at PG level. Second our administrative processing is virtually devoid of any delay.

Constraints are the promotion of these activities, as in India there is no plan of awards to the people who perform best at their level, but provision is always there for negligence of the duties. However, serving different nature of jobs by specific people is not under the rule, which is a big window to pass the one who don't want to work hard.

5. Evidence of Success

Evidences of success:

10. International research publications of M.Sc. students.
11. Fast processing of any given administrative work or assignments.

6. Problems Encountered and Resources Required

We need a provision of award at every level to promote people serving with honesty, intellect and hard work to our University.